PRACTICAL HARDY FRUIT CULTURE

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BY

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INTRODUCTORY NOTE.

THE cultivation of hardy fruit is one of the most healthful occupations, and at the present time many people are adopting it as a business. Many know little or nothing about such work, and it is to such people that I hope this book will be useful.

The instructions contained in the book are from my own practical experience extending over a period of thirty-seven years. I have written it as plainly as possible so that beginners will be able to understand not only parts of it, but all of it. I have endeavoured to put everything down as straightforwardly as possible.

What successes I have gained have been by following the methods in these pages. I sincerely hope that the book will convey useful information to all readers.

The originals of all photographs were grown in these gardens, last season, and I have to thank Mr. Elsden and Mr. R. A. Malby both very much for taking same.

RICHARD STAWARD, F.R.H.S.

Panshanger Gardens,
HERTFORD.
January, 1920.

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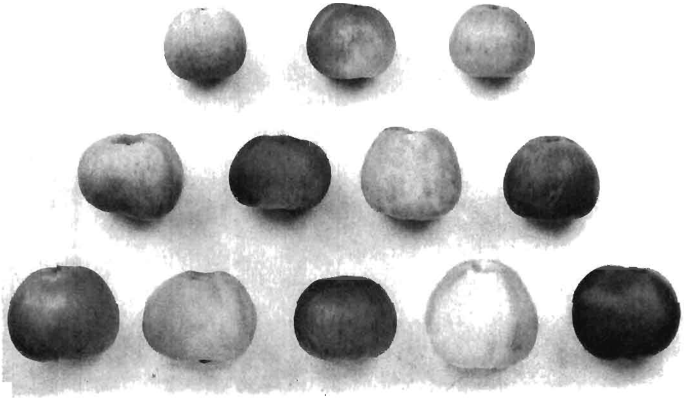


A CHOICE SELECTION OF APPLES

Allington Pippin. Rival. Middle Green

Bramley's Seedling Gascoigne's Scarlet Lord Derby Charles Ross

Peasegood Nonsuch Warner's King Peacemaker Rev. W. Wilks Lord Stradbroke

GENERAL PRACTICE.

When a person who has no practice or general experience starts a Fruit Plantation (as many are doing at the present time), the first thing to do is to ascertain what class of soil prevails in the district. If it is noticed that the Wild Crab, the Sloe, or the Wild Gean grow in abundance, then it is quite certain that Apples, Plums or Cherries will do very well on the same soil. One has to depend on observation a great deal in the selection of ground for fruit culture.

The preparation of the soil is of the greatest importance. Drainage should be attended to if the soil is wet. The following is a very good test for wet soil: Dig small pits in the ground to be tested and cover with boards. Examine at intervals of a day, and judge according to the amount of water which has risen in the pits. The ground can be improved in a great many ways, such as by adding manure, lime, or extra soil—viz., loam or marl.

The keeping of the plantation free from weeds of every kind is of the greatest importance, as is also the stirring of the soil. This all helps to promote a clean, healthy growth. It must be understood that very light, crumbly soil does not require so much stirring as very heavy soils.

When planting fruit trees they should receive very careful attention. Many trees are forced into holes

which are much too small for them. The holes should always be large enough, but not very much too large. It is always best to place extra prepared soil about the roots. It will be found that this helps the trees greatly through the Winter.

The spraying of fruit trees should never be neglected. I think myself that the sprayer is used far too little. By spraying the trees a much more healthy growth will be obtained, and very little trouble will be experienced with Aphis in the Summer. Great care should be taken in the use of Insecticides, especially when the trees are in leaf, as if applied too strongly a great loss of foliage will result. It is not always safe to go by directions on the tins or drums, as some varieties are much more tender than others. One of the safest things to use in the Summer is Quassia Extract. This Insecticide does its work well with no bad results.

My contention is that if a Fruit Plantation is kept perfectly free from weeds, and is given a good dressing of slaked lime or Kainit, there will be practically no caterpillars or aphides in the Spring.

Ground for Fruit Plantations should always be chosen with an eye to shelter. Shelter of some kind is essential from cold East winds, and also strong winds from the South-West. It is not wise, however, to have a small plantation hemmed in by a thick belt of trees.

After planting fruit-trees, be careful to stake them firmly, as young trees are apt to get blown out of

place by strong winds. Newly-planted trees should always be cut back, as if all of the growths are left the trees will take much longer to get established. About one foot of the current year's wood should be left.

Now a word to the inexperienced: Do not be afraid to ask for information, as members of the gardening class (as a rule) are always ready to give information. An enthusiastic person will gain success much quicker than one who leaves things to get on by themselves. One cannot (and must not) expect a great return if things are not properly attended to. My success has been gained mainly by three things—Observation, Water and Manure.

APPLES.

THE APPLE is the most useful of all British fruits. It is generally believed that the Romans introduced the Apple into this country, although some varieties were cultivated long before they came here. In its wild state the Apple is known as a Crab.

Climatic and soil conditions influence the fruit of the Apple tree to a great degree. A variety grown in the North may be large and juicy, while in the South the same variety may be small and dry. Ribston Pippin is always best grown north of the Humber. If grown in a southern position in Scotland this variety is very rich, but in the South of England it is very hard and dry. Hawthornden and Stirling Castle will grow in almost any part of the kingdom. More often than not Cellini grows to such perfection in the North that it is used as a dessert Apple. Crimson or Summer Queening is a Herefordshire Apple, as is Striped Beefing. Hanwell Souring is a County Oxford Apple.

PROPAGATION.

The Apple may be increased on its own roots by seeds, cuttings, layers and suckers. Also by budding and grafting.

SEEDS.—Seeds are mostly sown with a view to raising new varieties. The pips should be taken from good fruit, and they may be sown at once, or kept in sand until the Spring. Sow in drills one inch deep and six inches asunder. Place the pips three inches apart, and cover with fine soil. The drills may be filled up with fine wood ashes. If mice

get at the pips, traps must be set for them. Keep the ground free from weeds, and in the Autumn transplant the seedlings to one foot apart, shortening the tap-root from three to six inches. Transplant the next Autumn to three feet apart. The shoots should be pinched in June. Pruning should be confined to removing irregular growths in June and September. Within seven years mostly all the seedlings will bear fruit. When they do so, stop lifting the trees, unless the growth be very strong.

CUTTINGS.—All varieties may be increased by this method, which is an uncertain and undesirable one. Cuttings should be taken of the previous year's wood, not less than than eight inches in length, with about two inches of two-year-old wood attached. Remove all but the uppermost buds, and insert firmly in sandy loam, in mild weather, as soon as the leaves begin to fall. When well rooted, transplant to three feet apart.

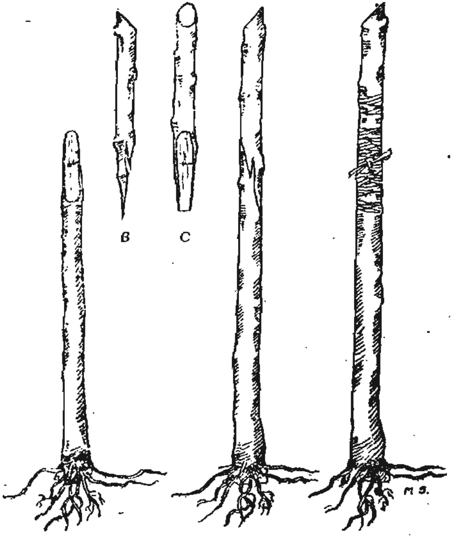
LAYERS.—This is an undesirable, yet less uncertain method of increasing. It should be done in Autumn or Winter. The branch to be layered should be cut half-way through at a joint, and pegged down into the soil. If the layer is covered with fine soil it will be an aid to its rooting. The layers may be detached the following Autumn.

SUCKERS.—These usually spring from the roots of seedling trees. The suckers must be removed with very great care or they will die. They themselves when transplanted are liable to throw other suckers. To prevent this, all the buds on the stem underground should be cut out.

BUDDING.—This is the most-used method of increasing Apples. It is much more convenient than grafting. July and August are the best months to perform budding, and it is best done in moist weather.

Good medium shoots should be used to take the buds from.

TONGUE OR WHIP-GRAFTING (A).



A—Prepared stock.
B & C—Prepared scion—side and front view, showing tongue.
D—Stock and scion fitted together.
E— ,, ,, ,, bound firmly.

(For other illustrations of grafting see section on "Grafting" at end of book.)

GRAFTING.—Whip-grafting is the best method to practise for young stocks, but rind or crown grafting is more suitable for large and old stocks. In the South grafting may be performed from the middle of March to April, but in the North it should be done about a fortnight later. Grafting should never be attempted until the sap is flowing freely in the stock. Stocks must never be cut back in frosty weather, but they must be done by the middle of February (if possible). Grafts should be inserted from six to nine inches from the ground.

The scions should be taken in January or February, but never in frosty weather. They should always be taken before the buds commence swelling, and be laid in on a north border. The scions must be of well-ripened wood, and shoots of the previous year's wood are generally used. Long, succulent growths are very unsuitable for scions.

STOCKS.

The Crab stock is the best for standard or half-standard frees, and also for trees which have to be planted in exposed positions. The broad-leaved English Paradise stock is the best for dwarf trees. They produce better fruit than trees on the Crab, and if they grow too freely they may be lifted, and will recover in much less time than trees on the Crab stock would.

SOIL.

Apples, like many other fruit trees, will not thrive in any soil. They grow very well in brick-earth soils, but the best soil for Apples is a good substantial loam, about eighteen inches in depth. The Apple will never succeed in water-logged or hot, sandy soils. Marly soils contain most of the elements required by the Apple. Light soils may be greatly improved

by adding clay marl. Loams of a marly nature always produce the finest crops of Apples. Trees should not be planted in a shallow loam on chalk, or on land where the soil is made sour by stagnant water. Whatever the soil be it must be sweet, to suit the Apple.

Preparing Ground.

When preparing new fruit plantations, whether large or small, it is always advisable to trench the ground, but it is not necessary to bring the bottom spit to the top. It is also a good practice to have at least one crop off the ground before planting the fruit trees, such as potatoes. A suitable variety should be put in so that they may be taken up again before it is time to plant.

The ground should be well trenched to a depth of two feet, but not deeper than this. The bottom of the trench should be broken up. It is unwise to plant trees on sandy soils which are too deep to be made better in any way. Sandy loams may be greatly improved by clay marl being made use of. A cart-load of this per pole should be spread on the surface and left for a considerable time. This may be done in Spring, Summer or Autumn, but not in Winter. Clayey soils may be improved by adding some fresh sandy loam, but stiff clays are best improved by burning. The top spit should be removed and a foot of the solid clay burned into a crumbly, easily-mixed soil. The burnt soil mixed with the surface soil makes a durable, fertile medium.

Sandy marls may be improved by adding clay or stiff loam, and sandy loam should be added to clay marls. Marly soils are usually rich in lime. Rich, but heavy soil should be stirred about as often as possible during the Summer. Moving and re-moving

heavy soils regularly helps to make them lighter. On the other *hand, light soils require* NO *stirring. The* more these soils are ridged and stirred about the poorer they become. Hoeing is necessary, but this and digging (in season) do not hurt.

Of all soils, I think a good loamy marl is the best, not only for Apples, but for most fruits generally. This kind of soil produces the finest and heaviest crops.

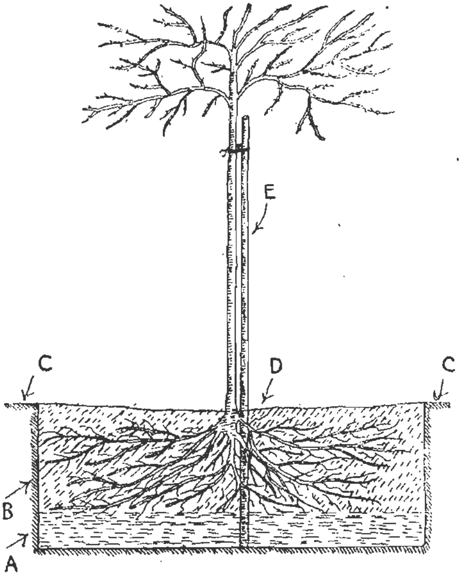
Distances for Planting.

The exact distance for planting trees must be determined by circumstances, such as the habit of the trees or the size of the garden. The following distances are for trees, and everything being considered in general. Perhaps it is because it is not generally known, or because there are no suitable walls, but Apples are seldom seen on walls in England. In Scotland some of the finest and largest Apples are grown on a south wall, in exactly the same way as pears or peaches.

Fan or horizontally-trained espaliers for walls are planted twelve feet apart. Twelve feet is the usual and most general distance to plant wall trees on the Paradise stock. If they are on Free stocks they may be planted from twelve to fifteen feet apart. Bushes or Pyramids on Free stocks are planted twelve feet apart, but if on the Paradise stock they should be planted from six to nine feet apart.

Where space is limited, Standards are planted twelve feet apart, but not less than this distance. They may be planted any distance apart in large gardens or plantations. Thirty feet is a good distance if space does not count. Cordon Apple trees are very seldom grown, but if it is wished to have them, eighteen inches apart for Single Cordons

is sufficient. Double Cordons should be three feet apart, and gridiron-trained trees about four feet apart.



PLANTING A TREE.

A—Soil beneath well broken; B—Good soil put in and roots laid out evenly; C—Old soil surface; D—Basin formed for holding water; E—Stake.

Modes of Training.

Cultivated trees require proper training if they are to form into shapely trees. It should be well known (but I believe it is not, judging by most people's idea of pruning) that the sap flows most readily in straight, upright branches, and least readily in crooked and horizontal branches. Standards, Bushes and Pyramids are the most cultivated forms.

Standards.—The maiden tree must be securely staked so that the stem will form perfectly straight and upright. Also to prevent damage. The maiden must not be cut back or "headed" the first year, as this causes a kink in the stem. The second year a number of side shoots will have formed, and these may remain, as they will shade the stem and help to thicken it. They must be pinched to four or five leaves in September, and at the Winter pruning will be cut off close to the stem. At the Winter pruning in the second year the young tree should be cut over at four feet for Half-Standards and six feet for Standards. The young trees have usually grown to this height (sometimes higher) by the Autumn of the second year, but if they have not, it does not matter if they are cut back at the Winter pruning in the third year. In the Spring of the third year (in the usual way) several shoots will push from the top of the young tree. Only three of the strongest and straightest of these should be retained, rubbing all others off. These three growths must be cut back to three good buds at the Winter pruning. As the head is now being formed all side-growths on the stem should be cut off close (in the Winter) and no more should be allowed to form. In the Spring of the fourth year secure two shoots from each of the shortened branches. All other laterals, wherever formed, must be rubbed off. At the Winter

pruning each shoot should be shortened to six inches, but they may be left a little longer if there are not at least two sound buds below this length. The tree has now six branches, and two shoots should be secured from each of these in the fifth year, making a tree of twelve good branches. For a Standard these are sufficient branches, and the trainer should now aim at keeping the tree open, yet shapely.

BUSHES.—This is the most useful form in which to train Apple trees, and it is the best for small gardens. The maiden should be cut back to a foot of the ground, and if late growths appear on the stock they must be rubbed off. In the Spring of the second year two shoots should be secured on each side of the leader. Laterals which may push from these shoots require to be pinched at the second leaf and cut right away in the Autumn. The points of the young branches only are removed in the Winter, and leader and branches are about the same length. This is the foundation of the bush, and in the third year the branches will push laterals, some of which may remain, where there is room for them. They must be cut back to about half their length in the Winter.

The main thing to be considered when training bushes is space. On no account must the branches be crowded, as they require all possible light and air, and this they cannot get if they are crowded together. Unfruitful bushes will often fruit well the next season if all the old wood is thoroughly thinned out. When a bush has been properly formed, care should be taken with the pruning of it.

GOBLET-SHAPED BUSH.—Apples are only trained in this form as ornamental trees, as a general rule. The maiden should be cut back to about a foot of the ground in the Winter or early Spring. Of

the shoots which push, three must be selected as nearly as possible on the same level. Train these shoots outward at an angle of 45 degrees, and in the Autumn cut them back to three sound buds. In the Spring of the second year secure two strong shoots from each shortened branch, and remove any others. Goblet-shaped bushes have rarely more than six branches. About the middle of Summer a training-hoop may be put on. The branches should be arranged round the hoop at regular intervals. A hoop about two feet in diameter is a good size for general purposes. In the Autumn of the second year cut the branches back to about half their length, and in the following Spring train the best shoot from each branch perfectly upright. Side shoots are pinched at four or five leaves to form fruiting spurs. After this hoops may be put on at regular intervals to keep the tree in shape, until it has reached the desired height. When it has attained this, it should be closely pinched.

PYRAMIDS.—This form of Apple tree is usually seen planted in borders along the sides of paths or gravel walks. In ordinary circumstances a one-year-old maiden will be about three feet in height if it is sturdy and healthy. This young tree must be securely staked. Many young trees are ruined through not being properly staked. If this tree is transplanted in the late Autumn or Winter it will benefit greatly, and very probably fruit earlier. I myself think that all young trees should be lifted and re-planted annually until the third year of training. Whether the tree is transplanted or not, it requires to be cut back to half its length (or about eighteen inches of the ground) at the Winter pruning.

Of the shoots which will push in the following Spring, four of the very best should be selected on

each side of the leader, rubbing all others off. If laterals make their appearance on the side shoots they must be pinched to two or three leaves. At the Winter pruning the side shoots are cut back to about half their length and the leader to half the season's growth. In the Spring of the second year two shoots should be secured on each side of the leader. Only two shoots must be allowed to spring from each shortened branch In the second year the upper shoots are cut back about one-third of their length, as is the leader, but the lower branches need not be shortened, as from their position they will not grow so vigorously. Any smaller growths in the interior of the tree, which are closer than nine inches, should be cut back to about one inch of their origin.

The foundation of the tree has now been formed, and two or three shoots (according to the strength of the tree) should be trained on each side of the leader every year until the tree has attained the desired height. As the tree grows taller the side branches are cut shorter. Pyramids require careful pruning to keep them properly shaped.

Cordons.—Apple trees as Cordons do not seem to be in great demand in this country, but Cordon-training of all fruit trees is practised extensively on the Continent. Trees trained in this way are very useful for planting in corners of walls or fences, or for filling up spaces on walls until the regular trees grow larger.

There are various forms of Cordons, but I will not talk about the training of these here. All will be fully dealt with under "Pears."

Horizontal Training.—For this form of tree a strong straight-stemmed maiden should be chosen. This must be cut back to about one foot of the ground at the Winter pruning, and at least three

UNTHINNED BRANCH OF "COX'S ORANGE PIPPIN."

This Apple is one of the most popular for Dessert. The photograph was taken before the fruit had attained full size.

[To face p. 34

sound buds should be left. In the following Spring shoots will push from these buds, and any others which may push must be rubbed off. The highest of these shoots is to be trained upright, and the other two to right and left respectively at an angle of 45 degrees. In the Autumn the leader is cut back to three good buds of the place where it was first shortened. The distance should be about one foot, as that is the space allowed between the horizontals. In the second year a shoot is trained to right and left of the leader. The two lower shoots are not to be stopped in any way, but laterals are pinched to about the fifth leaf, and if sub-laterals should make their appearance they are pinched to two leaves as growth is made. If more than three growths appear on the central stem they should be cut off close.

In July the leader should be pinched at the point where the next horizontals will come. By the Autumn the tree should have three tiers of strong branches, and thus by pinching in July a year is gained. This Autumn a temporary trellis should be made with canes or sticks, and the branches trained horizontally to it. They must be tied to the trellis straight outward, firmly but not too tightly. The leader requires to be cut back to the necessary length at this time, and any laterals on the main branches to one inch.

Training for following years is the same as for the preceding year, and if the leader is quite strong two sets of branches may be trained each year.

Single Palmette.—This form of Apple tree is very old-fashioned, and in olden days it was used extensively along the side of borders. It is a very easy form to train. The maiden should be cut back to about a foot of the ground at the Winter pruning. Of the shoots which will push in the Spring, only

two will be retained, these being trained to right and left respectively. A strong single wire is usually put up for their support. The two leaders are not stopped, but laterals must be pinched at from three to five leaves (according to length) to form fruiting spurs. The leaders may be trained to any length. This form of tree is very useful for edgings, as they require very little attention.

There may be one or two small forms which I have not spoken of, but I think I have mentioned the chief systems of training. Those forms which I have spoken of are the most useful, most common, and the most suitable for ordinary gardens. It should always be remembered that fruitfulness does NOT lie in fanciful and elaborate training of trees, but in proper rational treatment. If this is remembered there will be fewer failures among fruit cultivators, especially amateurs.

General Management.

Thinning the Fruit.—Fruit trees, especially Apples, frequently bear heavy crops one year and none at all the next year, or perhaps the trees will produce a heavy crop of very small fruit. All this is generally the cause of not thinning the fruit when it is small. Heavily-laden trees should have the fruit thinned to about one-half the crop. The trees may be looked over two or three times after the first thinning, removing any which may have grown too close since. It should always be remembered that over-cropping exhausts the trees greatly, and that much finer and larger fruit may be obtained by thinning.

Preserving Buds.—The fruit crop is often spoilt for the whole season by birds devouring the buds.

Of these depredators, Bullfinches are generally known to be the worst. A very few birds will soon do a great deal of damage in a garden. The very best thing I know of for saving the buds is Bentley's "Spidacide." Birds never touch the buds of trees which have been sprayed with this mixture. It may be objected to, however, as it has an evil smell. The trees should be sprayed as soon as bud-eating birds make their appearance. Directions for the use of the mixture will be found on the tins.

SYRINGING AND WATERING.—Apple trees will benefit greatly if they are syringed with clear cold water in the Summer evenings. Syringing cleanses and refreshes the leaves, and for this reason the spray should be directed against both the upper and under surfaces of the leaves. It is always best to use rain-water for syringing, and it must be clear. Forcible syringings keep Red Spider and Aphides at bay.

In hot, dry weather Apple trees (as well as other fruit trees) should receive water in plenty, applying it before the trees reach the point of dying. Light sprinklings are not of the least good. The trees must receive a thorough soaking before the ground becomes hard and parched and begins to crack. When the ground has got into this condition it takes more than double the quantity of water to get it into good working order again. Water should be given as necessary from the time of the fruit setting until it changes for ripening.

It is a very thankless task waiting for rain, and time lost in this way can never be regained. It should be remembered that water given at the last minute is generally wasted, and that though the trees need water it should not be given unrequired. Needless applications make the soil cold and sour, and do more harm than good.

PROTECTING THE CROP.—In most districts all fruit requires some protection from birds and winds, and the Apple is no exception to this rule. Blackbirds are the worst of the birds, and they usually "start" some of the largest and finest fruits, and wasps, hornets and flies finish them.

Where the fruit is large and fine it pays to tie each one separately in muslin bags or squares. This also acts as a protection against wasps, etc. Personally, I think this is the best way of protecting Apples. Netting may be put over trees on walls or fences, but large Standard trees are not usually netted.

GATHERING AND STORING.—The best test for gathering Apples is to take the fruit gently in the hand and bend it lightly upwards. If the fruit separates easily from the branch it is ready for gathering. When gathering fruit of any kind, and more especially Apples, the fruit must NEVER be pulled off with buds or spurs attached to it. When this is done, in most cases the blossom for the next year is being pulled off.

Gathering should always be done, as far as possible, on fine, bright days, and it must always be performed very carefully. The less Apples are handled the better. Large, fine specimens, and Apples for show purposes, are best gathered in trays and carried to the fruit-room on a hand-barrow. The small fruits should be put aside for cooking, or to be sold, and any pecked or damaged fruit must be put aside for immediate use. Partially decayed fruit soon decays wholly, and if not used immediately it is wasted.

STORING.—Apples which are to be kept for any length of time must be stored in a suitable atmosphere. A warm, moist atmosphere induces decay

sooner or later. Three things are necessary to make sure of the sound preservation of any fruit—viz., a still atmosphere, a low temperature, and darkness. Great differences in the temperature of the fruit-room must not be allowed. The room should always be frost-proof, as frost causes the fruit to decay very quickly.

The Apples should be placed singly, in rows, on the shelves. The longest-keeping Apples are best placed highest. For instance, Apples which will keep to about Christmas should be placed on the lower shelves, while those which keep until the end of May or the beginning of June are best placed on the highest shelves. The fruit should be looked over occasionally, and any which may have commenced to decay must be removed. As well as being frost-proof, the fruit-room must always be fitted to exclude rats and mice effectually.

PRUNING.

The pruning of the Apple is understood very little by many planters. Some so-called expert gardeners do not understand it properly.

Fruit trees are being planted in increased numbers at the present time by people who have no experience as gardeners. Proper pruning can only be obtained by studying the various varieties. Some varieties produce fruit on the end of the young wood. Many trees are spoilt by too much cutting. I believe in allowing the young trees to make the full growth for the first year or two. As long as they are left unpruned they should be lifted and replanted annually. If a tree gets too thick, thin it out, but do not prune. Pruning only thins the trees for a time. Trees which are spurred hard back every year

are much more liable to American Blight and Canker than trees which are allowed to grow freely. When the trees begin to carry a good crop they require a little pruning. All branches which are closer than nine inches should be cut away; also any which cross. In young trees there ought to be no dead wood, but in old trees the dead wood must be removed, as it harbours insect pests.

If fruit trees are growing strongly (with no fruit) they will never be made fruitful by pruning. The best thing to do is to lift them and replant. If the large tap-roots are very long they should be shortened, to induce more fibrous roots to grow. It will help the trees if they are replanted in a different position. In most cases the trees fruit in a year after lifting, and when they once become fruitful they require little or no pruning. The young branches must never be too crowded, and they should not bear too many fruits the first year or two.

It is wonderful what crops can be got from trees which are never pruned, but only thinned out when overcrowded. Hard pruning encourages rank growth. As a rule, the current year's wood, if left, will show fruit buds. Young trees will soon come into bearing, and will continue to bear fruit.

The trees should always be kept perfectly clean. If this is observed, and they are fed well and properly, they should always produce plenty of good fruit—that is presuming the trees are properly thinned out.

The Summer pruning of wall trees, Single, and Horizontal Cordons should not be done before the end of July. If it is done before it usually causes a second growth to start. When this is the case the trees are soon overcrowded with sappy growths, and on no account should this be allowed.

Manuring.

It is generally believed that Apple trees do not require so much manure as other fruit trees, but, personally, I think they require just about the same amount, especially trees in light soils and those which bear heavy crops yearly.

Mulching is one of the best ways to apply manure, and a mulch may be put on at any time. A mulch of good manure may be put on in the Autumn, left throughout the Winter, and be lightly forked in in the Spring. However, I think the best time for a mulch, and when the most benefit will be derived from it, is just after the fruit has set. I usually put on mulches from the end of May to the middle of June. If the weather is dry the trees may be given a good soaking of water before the manure is applied. The mulch may be added to up to about September.

Liquid manure is also of very great value to the trees. This may be applied at intervals from when the fruit sets until it changes for ripening. After this clear water only should be given. Another very good thing for Apples is blood manure, which may be given as a dry manure or as a liquid. If applied in the dry state it should be mixed with the same amount of Kainit, and about a pound of the mixture given to each tree in July or August. If given as a liquid, one pound of blood mixture should be added to six gallons of water, and the trees be given a good soaking of the mixture.

Kainit (easily obtained in pre-war times, but very scarce and dear now) is one of the very best of artificial manures for any fruit trees. About a pound of this sprinkled about the roots of each tree in the Autumn will do an immense amount of good throughout the Winter.

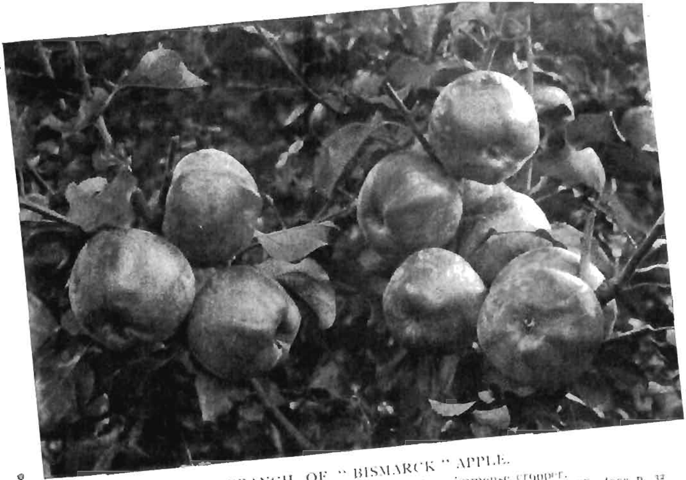
Forming Borders.

In a garden, or in any situation where the soil is quite unsuitable for the successful cultivation of Apples, it is best to make a proper border. The soil should be taken out to a depth of two feet, and the bottom of the border sprinkled with a thin layer of old mortar rubbish. It is necessary to use only a small amount of this. Fill up the border with a mixture of good turf cut from an old pasture, marly soil, and good loam. These should be mixed in equal proportions, and the turf cut small with a spade. To this add a small amount of half-inch bones, and mix all thoroughly. Bones of this kind will last for years. The border must be made firm, but not hard. Apple borders should be from four to six feet wide, and small trees, or seedlings for trial, may be planted between the permanent trees. These must be removed as soon as the larger trees require more space.

Planting.

When planting Apple trees, as well as all other fruit trees, November is the best month to choose. Planting may be carried on from the beginning of November until the end of March without hurting the trees, but I repeat, November is really the best time. However, I have planted Apple trees in June, and they were as fresh and green as those which were planted in the Autumn, but they had not made such long growths. When planted I gave them plenty of water, and covered them over with an old piece of matting for a week, and after that they thrived splendidly.

If the trees are to be obtained from a nursery, strong, healthy, well-balanced trees only should be chosen. Great care must be taken when buying new trees to see that they are free from Canker and Woolly



BRANCH OF "BISMARCK" APPLE.

A highly-coloured Culinary Apple and an immense cropper.

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Aphis. If the trees cannot be planted immediately on arrival, they should be laid in on a north border until such time as is convenient for planting. After the trees have been ordered it is wise to commence mixing some fresh soil for planting to help the trees through the Winter. Mix together equal parts of good loam and sieved leaf-mould, which must be free from sticks. To this add a good sprinkling of bone meal and mix all thoroughly.

Before planting it is well to trim up the roots of the trees, cutting level any which are damaged or broken, and shortening any which are very long. Care should be taken to make the hole just large enough to receive the tree. Two barrow-loads of the soil already mixed is applied to each tree, and it must be pressed about the tree quite firmly, but the whole must not be converted into a hard mass. The great thing in planting is to see that the roots are not jumbled together in one corner. They must always be spread out evenly around the tree, so that they can do their work properly.

If the weather prove dry at the time of planting, water will be necessary. Enough of this should be given, but not too much, as it will make the ground cold and sodden, and on no account is this to be desired, as the Winter is coming on.

Winter Treatment.

The most important item of the Winter treatment of Apple trees is spraying. If the trees are sprayed in the Winter with concentrated alkali a great amount of fruit and leaves are saved in the following Spring. One tin of the alkali to eleven gallons of water is the proper strength for Apples, but directions for other trees will be found on the tins. Old clothes should be worn when spraying, and also a

pair of strong rubber gloves. The trees may be sprayed any time throughout the Winter, but a dry day is most suitable.

The trees may be given a dressing of Kainit in the beginning of the Winter. As this is a salt, it does a great amount of good in killing the chrysalids of various pests. I have found that when I use Kainit in the Winter I have very little trouble in the Spring of the following year. At the end of the Autumn a dressing of half-decayed manure may be put about the trees and left throughout the Winter. In the Spring following it may be forked in very lightly, care being taken not to disturb the roots.

Any trees which do not fruit well (or not at all), but only make a large amount of gross growths, should be root-pruned at this time. The soil must be removed from about the tree until the roots are reached. Vigorous tap-roots require shortening, and if they are very thick some of the longer ones may be cut right back. By cutting down the thick tap-roots more fibrous roots are produced, and these are what the trees chiefly depend on.

Trees which require lifting and replanting should be attended to now, and trees which are to be removed should also receive attention. If the best results are desired from new trees, planting must now be proceeded with as speedily as possible.

Summer Treatment.

Much success lies in the Winter treatment of the Apple, but very much more lies in the Summer, or rather, Spring and Summer treatment. The first thing to be done as regards " Summer " treatment is spraying. The trees should be thoroughly sprayed with lime sulphur wash before the blossom buds open, and again when the fruit has just set. This

does away with a great many caterpillars, which would appear later. About the middle of May or the beginning of June a mulch of good half-decayed manure may be put on. Heavy mulches must never be applied, as they do more harm than good. If the ground is very dry the trees should be given a good soaking of water before the mulch is applied.

Further information on "SUMMER TREATMENT" will be found under the heading "GENERAL MANAGEMENT," and it is unnecessary for me to write more here.

ENEMIES OF APPLES.

The Apple is subject to several diseases, and has a number of enemies. When properly treated, if the soil and situation are suitable, it is seldom seriously affected by any disease.

CANKER.--This is the most serious of all the maladies which attack the Apple. Some Apples are much more subject to Canker than others. It appears in dry, brown patches, which shrink, crack and expose the wood. It is most prevalent on trees grown in stubborn clay. Soil which holds stagnant water, dry, gravelly soils, a thin surface of soil on chalk, very rich, loose soils, low, damp situations, and very careless, unnecessary pruning, are all causes of Canker. These must be avoided if the trees are to be free from Canker, but I think the worst cause of this disease is letting the tap-root of the young trees penetrate into the bad soil. The tap-root does not find this soil suitable for its wants, and so the tree becomes weakened, and when in this state (with the help of all the above causes) Canker fastens on to the tree.

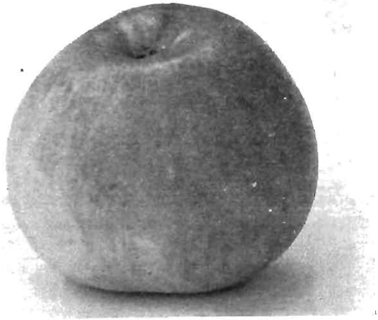
I should like to make it plain that it is useless to try to save a tree which is badly affected with Canker. I consider it to be a waste of time and materials.

Badly affected trees should be removed and burnt. In the case of trees which have only a slight touch of Canker it is a different matter. When there are only a few small patches these should be well scraped and then dressed with grafting wax. In most cases the two pieces of bark will grow together over the wounds. The trees should be lifted and replanted in the Autumn following this treatment, and if the roots are very long they should be pruned.

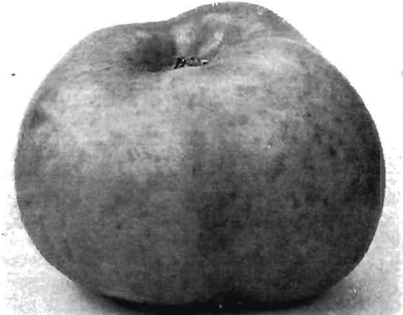
SPECK.—*This is a fungus which attacks most fruit,* including the Apple. It makes its appearance in the form of tufts of very fine yellowish-white hairs, and usually appears first on half-grown fruit. These patches become black in time. As this disease flourishes on fallen Apples, all such should be excluded from the fruit-room. No affected fruits must be put in for storing, but should either be burnt or kept for immediate culinary use. Whenever the Speck is noticed the trees should be thoroughly sprayed with lime sulphur wash. The solution is best applied rather under strength, as if it is too strong it causes the leaves to fall off. The trees may be sprayed before Speck makes its appearance, to act as a preventive. Generally it appears in July, so that the trees should be sprayed any time in June. If the trees are well dusted with sulphur as soon as the Speck is noticed, it will prevent the disease spreading, but will not cure it.

MILDEW.—*This is easily recognised as a greyish-*white powder. It appears on the youngest shoots, and these soon become thickly covered with it. There are a number of slightly different Mildews, but they are all of the same genus, and they may all be treated in the same way.

Where cleanliness is observed Mildew is very rare. In my opinion Mildew is generally caused by a cold,



APPLE, "RIVAL."
A new variety of great merit.



APPLE, "BRAMLEY'S SEEDLING."
A deservedly popular Culinary variety.

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sour subsoil, and where this is the case the drainage is usually found to be at fault. This should be remedied at once by proper and sufficient drainage.

Mildew can be kept down to a great extent by pinching off the shoots just below the Mildew as soon as it is noticed. If this practice is kept up regularly for a while its hold on the trees will gradually weaken. As soon as each shoot is removed it should be burnt, and all prunings of trees which are liable to Mildew are best treated in the same way. It is said by many that sulphur does not kill or cure Mildew, but only hinders the germination of the spores. This may be so, but in any case the trees will always derive great benefit from sulphur. A good dusting of sulphur will not hurt the trees, but it will do them a vast amount of good.

AMERICAN BLIGHT, OR WOOLLY APHIS.—This is one of the worst pests the Apple is subject to. It is generally found in neglected orchards and gardens. This Aphis is a white, woolly substance, which lodges in crevices in the bark of the trees, or where a branch has been broken off; also in damaged places caused by cattle or rabbits. When trees are damaged by the two latter causes it is usually the owners' fault. The orchard or fruit garden should be surrounded by a strong fence, and this fence should be lined to a good height with rabbit-proof wire-netting. I have seen young Cordons which were planted in a warm situation badly affected by being pruned too closely. I have always found the following mixture one of the best remedies for this Aphis: To six pounds of good clay add two pounds of soot and half-a-pound of soft soap. Mix all thoroughly with enough water to make a thin paste, and then add a small wine-glassful of paraffin. Apply with an old hair brush, smearing all affected places thoroughly. If all rough

bark and cracks are smeared with the above mixture it will act as a preventive of American Blight, and in this case it is very true that "prevention is better than cure." The ground about the trees should always be kept quite free from all weeds and grass. If the trees are badly infested with Blight, I find it always pays to remove them, and plant new ones in their places.

GREEN FLY.—This fly, which infests the leaves and young shoots, often does a great deal of harm. The best cure for it is a good washing with Quassia Extract. When the Fly makes its appearance, syringe the trees thoroughly. Directions for the use of the mixture will be found on the tins. When the Fly is first noticed the trees may receive a good soaking of clear water, as sometimes dryness at the roots will cause Green Fly to appear.

CODLIN MOTH.—The caterpillar of this Moth is the cause of a great deal of waste in Apples. The Moth lays its eggs in the young Apples as they are forming. These soon turn into caterpillars, which eat their way into the heart of the young Apples and are the cause of so many falling long before they are ripe. The trees should be sprayed with a good Insecticide just after the blossom has set. Quassia Extract, or a mixture of soft soap, are two very good things for spraying. A certain amount of caterpillars may be prevented from crawling up the trunks of the trees by banding them with old sacking or grease bands. These bands should be examined every week. If all the rough bark is scraped off large trees when they are in a dormant state, and the trunks sprayed with alkali, it will help greatly to keep clear of the pest.

LACKEY MOTH.—The caterpillars of the Lackey Moth are often very injurious to the foliage of most

fruit trees. Sometimes they are seen in great webs, when they can be cut off the trees and destroyed. The trees should be sprayed in the early Spring with Quassia Extract, and this must be repeated again just after the fruit has set.

ERMINE MOTH.—The caterpillars of this Moth are very destructive to most fruit trees. They should be treated in exactly the same way as for "Lackey Moth." These also hang in webs, which may be easily destroyed.

MUSSEL SCALE.—This is always worse on wall trees than any other, but it attacks the Apple occasionally. In the case of very bad attacks it is as well to scrape the branches with a blunt stick, and afterwards dress all parts of the trees with the following mixture. To six pounds of good clay add one pound of soft soap and four ounces of sulphur. Mix all with enough water to make a medium paste. If the attack is a light one, three or four good sprayings of Quassia Extract will clear the trees. The sprayings must be repeated daily, but not after the Scale is dead, and three or four times is usually sufficient.

APPLE-BLOSSOM WEEVIL. — These beetles are usually (but not always) the cause of the blossom not setting. The beetles lay their eggs in the blossom buds before they open. As soon as these hatch out they feed on the anthers, and so destroy all chance of the blossom setting. Spray the trees in the Winter with concentrated alkali, and again about a week before the blossom buds open with Quassia Extract. The ground should be kept quite free from weeds and all rubbish, so that the beetles have no shelter in the Winter. The ground may be given a good dressing of lime in the Autumn or Winter, and this will kill those which take shelter in the ground.

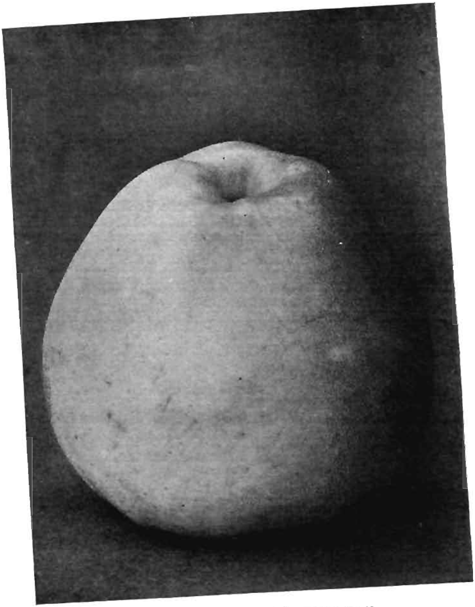
WINTER MOTH.—This is one of the most injurious

of all Moths, as the caterpillars attack any trees. The female usually lays her eggs in October on the buds or in crevices in the bark. Anything of a sticky nature may be smeared on the trunks of the trees to prevent the female from climbing up to deposit her eggs. Care must be taken not to use anything which will hurt the bark. In the case of young trees it is advisable to use greased bands or grease-proof paper smeared with a sticky substance. Old trees will not hurt so much, as their bark is harder. If the trees are staked, the stake should be banded as well, as the Moths are almost sure to gain access to the tree by them. The trees should always be banded by the beginning of October. Just before the blossom opens in the Spring the trees may be sprayed with Quassia Extract, and this will destroy a high percentage of any eggs which may have been laid.

RED SPIDER.—This only appears on Apple trees outdoors when they are planted in very poor soil, or when they are allowed to become very dry. If it should appear, syringe the trees once or twice with Quassia Extract. This will soon remove the pest, and the trees may be syringed with clear water afterwards to cleanse the fruit.

ANTS, EARWIGS, AND WASPS.—Ants are very fond of anything sweet, and choice fruit may often be found swarming with them. A sponge saturated with treacle or other sweet stuff will attract thousands, and it may then be thrown into boiling water. Partially-picked bones, or flower pots, also act as traps in the same way. Petroleum or Guano will drive them away from their homes, but they usually make fresh ones if they are not killed.

Earwigs are often the cause of much fruit being destroyed, and they always commence their depredations on the choicest fruit first. They are always



APPLE, "REV. W WILKS."
One of the newer varieties, and excellent for Culinary use.

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found in dry, warm places. All rubbish should be cleared away from the trees, and loose bark may be rubbed off, also filling up all holes. Hollow sticks of any kind make very good traps, as the Earwigs hide in these readily. The contents of these should be blown out every morning into a jug of boiling water. A boiled potato covered with moss and placed in a flower pot also makes a good trap. All baits must be examined daily.

The Common Wasp is the most common and therefore the most troublesome. All "Queens" possible should be destroyed in the Spring. Wasps always travel in a straight line from their nest, and in this way the nests may be easily found. The best thing for destroying nests is cyanide of potassium. As this is a dangerous poison it should always be kept safely locked in the poison cupboard. A small piece should be melted in water. The best way to apply it is to tie a piece of rag round a stick, and then soak it in the solution. When the rag is thoroughly soaked, the stick is placed in the mouth of the nest. The next day the nest must be dug out, as if it is left the grubs will soon hatch out. For bushes or wall trees, half-filled bottles of sugar and water or sour beer make excellent traps. Hundreds will enter one bottle on a sunny day. I have said nothing about Hornets as they are not very common (in England, at least).

LICHENS AND MOSSES.—These, which are real plants in themselves, clothe the trees thickly and so hasten their decay. They are found mostly on old trees. Their appearance is induced by wet, damp land, or a crowded state of the trees. These causes can be easily remedied by draining the land and thinning out the trees. The best and quickest remedy for Lichens or Mosses of

any kind is concentrated alkali. The trees should be thoroughly syringed with this as soon as all the leaves have fallen. One application is usually sufficient. The trees may also be syringed with lime sulphur wash, but I think this does not act so quickly. It should be applied at the same time.

APPLE WEEVIL.—This Weevil is very destructive to the fruit of the Apple. It is purplish-red in colour, and bores a hole in the Apples in June or July in which the eggs are placed. These hatch out very quickly and feed on the Apple for about four weeks. When the Apples fall, the grubs leave them to burrow in the soil. As the Weevils emerge in May, a sticky band may be placed round the trees at this time. All rubbish should be cleared away from the trees, and any loose bark may be rubbed off. All fallen fruit must be collected and destroyed. Wooden trays covered with tar may be placed about under the trees.

APPLE CHERMES, OR APPLE SUCKER.—This is one of the most destructive pests the Apple is subject to, sucking all the sap from the leaves and young shoots. The trees and ground about them must be kept thoroughly clean. Trees must never be allowed to become crowded. If the attack is slight the trees may be dusted with tobacco powder. This removes them very quickly. The trees can also be syringed with Quassia Extract repeatedly until the pest is exterminated.

SELECT VARIETIES.

Dessert.

ALLINGTON PIPPIN.—Medium, conical. Lemon-yellow, striped with bright red. Flesh juicy and crisp. Very vigorous. Good cropper. October to

Beauty of Bath.—Small and flat. Striped and spotted. Very prolific. Early August.

Charles Ross.—Very large. Too large for dessert. Fertile. October to December.

Court Pendu Plat.—Small, flat and round. Russet with red cheek. Prolific. December to March.

Cox's Orange Pippin. — Medium and round. Orange shaded dull red. Very juicy. November to January.

Ellison's Orange.—Medium. Very similar to Cox's Orange. October.

Feltham Beauty.—Medium and oval. Beautifully striped. Flesh crisp and sweet. A very fine early Apple. August.

Gascoyne's Scarlet.—Large and oblong. Too large for dessert, usually. Prolific and vigorous. September to February.

James Grieve.—Medium. Lemon-yellow striped red. Very juicy. September to October.

King of the Pippins.—Medium. Oblong rounded. Golden-yellow shaded red. October to December.

Ribston Pippin.—Medium size. Dull brown red with russet. Flesh crisp. November to January.

Rival.—Large, flat and round. Shaded scarlet. This may be used as a dessert or culinary Apple. October to December.

St. Everard.—Similar to Cox's Orange, but ripens much earlier. Juicy and sweet. September. A very fine early Apple.

Wealthy. — Medium and round. Beautifully striped crimson on pale yellow. Very juicy. May be used as a dessert or culinary Apple. October to November.

Worcester Pearmain.—Medium, conical. Evenly covered with scarlet. Very juicy, crisp and sweet. September.

Coronation.—Very similar to Cox's Orange, but ripens much earlier.

Culinary.

Annie Elizabeth. — Large, conical. Shining yellow, boldly striped with red. A very good cooker. Until April.

Baron Wolseley.—Immense. Yellow with red-brown flush. Cooks well. December.

Bismarck.—Very large and rather flat. Dark crimson cheek. Good cropper. November to February.

Blenheim Orange.—Large. Golden yellow with red cheek. Sometimes used as a dessert Apple. November to February.

Bramley's Seedling.—Very large and flat. Green with dull red cheek. Acid. Good cooker. Very prolific. November to January.

Ecklinville Seedling. — Large and round. Greenish-yellow. Very prolific. It should be gathered in good time or it will not keep. August to October.

Edward VII.—Very large. Of an even golden colour. January to April.

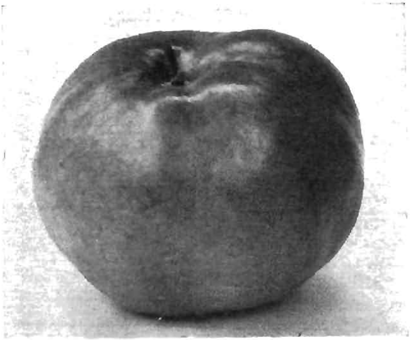
Emperor Alexander.—Enormous. Pale yellow, striped with carmine. A very handsome Apple. October to November.

Golden Noble.—Large and round. Of a golden yellow colour. Paradise stock only. October to December.

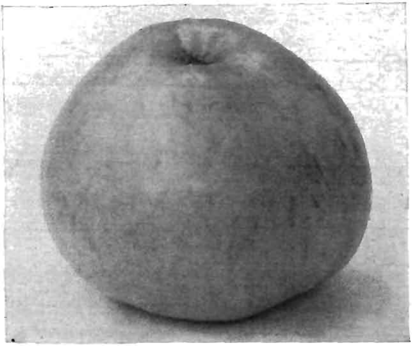
Grenadier.—Large, conical. Pale green to yellow. A good cooker. September to October.

Hector McDonald.—Large. Similar to Lane's Prince Albert. Very prolific. October to February.

Lane's Prince Albert.—Large and even. Bright green, changing to pale yellow. Regular fruiter. November to March.



Culinary Apple—" LORD STRADBROKE."



Dessert Apple—" MIDDLE GREEN."

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LORD DERBY.—Large and oblong. Bright green, changing to yellow. Very prolific. November to December.

PEASGOOD'S NONSUCH.—Very large and round. Beautifully striped golden yellow. October to November.

RED VICTORIA. — Large, flattened. Covered entirely with brilliant crimson. An early cooker. August to September.

REV. W. WILKS.—Very large. Pale yellow. Dwarf habit. Good cooker. October to November.

. STIRLING CASTLE. — Medium round. Green. Cooks well. September to October.

THE QUEEN.—Very large and flat. Palest yellow, boldly striped. October to December.

TOWER OF GLAMIS.—Large and irregular in form. Green, changing to pale yellow. Cooks well. Good cropper. Hardy. October to February.

WARNER'S KING.—Very large. Broad. Pale yellow. Good cooker. November.

WELLINGTON.—Medium round. Pale yellow, with slight flush. Acid. One of the best for cooking. Until March.

EIGHT OF THE BEST-KEEPING APPLES.

ANNIE ELIZABETH.
BRAMLEY'S SEEDLING.
LANE'S PRINCE ALBERT.
NEWTON WONDER.
ALFRISTON.
NORTHERN GREENING.
BAUMANN'S WINTER REINETTE.
COURT PENDU PLAT.

APRICOTS.

A Native of Armenia and countries eastwards, the Apricot was introduced into England in the reign of Henry VIII. In the East the fruit is dried in the same way as figs. Large quantities of Apricots are imported from France and southern Europe, but in a fresh state they are not so good in quality as the home-grown produce.

The Apricot is a low tree, somewhat crooked and ungainly in its growth, deciduous, and not hardy in the northern parts of the kingdom. The hardiest varieties succeed fairly well as standards in the southern counties, but in most localities the trees require the protection of a wall or a glass structure.

The leaves are convolute when young and ovate when full-grown, smooth and glandularly serrated. The flowers are sessile, pinkish-white in colour, and appear in February or March before the leaves. The fruit is round or ovate, fleshy, rich, and delicately flavoured, being less acid than most stone fruits.

Soil.

The Apricot does not like peat or strong clay soils. It flourishes best in a friable loam. Silicious and calcareous substances are essential to the successful cultivation of all stone fruits. If the soil is too light, lime rubbish, chalk, or clay marl should be added to it. Clay marl is the most suitable for light soils.

The first requisite in Apricot culture is drainage. No water must lodge within three feet of the surface. Drainage must be efficient, but some soils are

naturally drained. The soil should be trenched to a depth of two feet, and should have the bottom broken up. If it has long been under cultivation some fresh, turfy loam, mixed with it when trenching, will be a desirable addition. Stratified soils should be broken up, but some are naturally blended.

Propagation of Apricots.

The Apricot is raised from seed, and increased by budding and sometimes by grafting.

Seed.—In raising trees from seed, stones of the best varieties and most perfect fruit should be selected. The stones may be kept in damp sand until the Spring, or sown immediately the fruit is ripe, in light, moderately rich soil, in a warm situation. Place the stones six inches asunder in drills two inches deep, and the rows one foot apart, covering with sandy soil. In the Autumn spread two or three inches thickness of dry litter or cocoanut-fibre on the surface as a protection against frost.

Budding.—Seedling stocks do not answer for Apricots in any but warm soils. The Brussels stock is the best for trees that are to cover large surfaces. The " Moorpark " grows best on the Mussel stock. Budding is usually done from the middle to the end of July. For dwarf trees the buds should be inserted six inches from the ground, and never more than nine inches. Standard or rider trees should be budded at the height required. The buds selected for insertion must be wood buds.

Grafting.—Success depends entirely on the selection of scions with wood buds, and ripe wood. Scions should be detached in January and inserted half their length in moist sand. Whip-grafting is the most eligible method. In preparing the scions the wood should be well thinned away. Grafting is seldom practised, budding being a better method.

Situation and Aspect.

The great bane to the Apricot is damp, but it loves air and light. Eastern aspects with a southernly inclination are the most suitable. Western aspects are too moist. North of the Thames south aspects are the most suitable.

Forming Borders.

When the soil is a stiff clay, or a brash of gravel or sand, it is cheapest to make a proper border. It should be about four feet in width, but it need never be wider than two-thirds the height of the wall the trees are to cover. It should be excavated to a depth of three feet, the bottom to fall to drains a foot lower, and eighteen inches from the wall. The drains should not be covered with soil, but with stones. Brickbats or other rough material should be placed six inches thick at the bottom of the border for drainage, and on this three inches of old mortar rubbish. The border may then be filled six inches above its intended height with the top spit of a pasture, where the soil is a good sandy loam. Chalk in small pieces may be added to silicious soils. Avoid all manures. Borders should be made in dry weather with the soil in good working order. The work should be done a month or six weeks in advance of planting.

Planting.

Choice of Trees.—See that the trees, if maidens, are budded at the right height. Two or three years' trained trees are suitable; also older trees that have good roots plenteously furnished with fibres. Those with two principal branches of equal strength, one on each side of the stem, are best. Trees that have strong central growths and weak side branches should

be avoided. Selected trees cost more, but are always the best. The trees should be carefully lifted in the nursery and all the roots preserved. Careful packing is necessary, so that their roots will not become dried.

Distances.

Apricots do not succeed against low walls unless the trees are subjected to lifting and root-pruning. Cordons should be planted two feet apart, and fan-shaped trees from ten to twelve feet apart.

Procedure.

Apricot trees are best planted in the Autumn, when the leaves commence to fall. Trees of home growth may safely be lifted at the end of September or early in October. No tree should be planted deeper than will admit of the roots, where they start from the stem, being covered with more than two or three inches of soil. When planting, spread the roots out evenly, with soil between, so that they will not become jammed together. Trampling on the soil when wet is ruinous. A good watering may be given if the soil is dry, but not otherwise. Mulch the surface with two or three inches' thickness of short stable litter. Secure the growths loosely to the wall to prevent damage from winds. They may be affixed closely when the soil has settled.

Lifting Trees.

When lifting trees it is best to take out a trench all round, some little distance from the stem of the tree. It should be as deep as the roots. Sever the roots and leave the trench open ten days or a fortnight. This may be done the third or fourth week in August. If the leaves flag afford a slight shade. The soil inside the trench should be well supplied

with water, but not unless the leaves flag. The trench may be filled after remaining open for the time named. The tree can safely be moved at the end of September. A slight shade may be necessary after planting before the leaves fall. The foliage should be damped rather than the soil soaked with water. It should, however, be kept moist.

A special soil must be mixed for them if the trees are expected to fruit the next year. A good loam with a sixth part each of old mortar rubbish, sweetened horse-droppings, and wood-ashes, with a little bone-meal well mixed up, should be used to fill up the trench. Half-a-barrowful should be the proportion for each tree.

Manures.

No fruit tree subsists better in hungry soils than the Apricot, although silica and lime are essential for its successful cultivation. Phosphatic matter is absolutely essential, and the soil should contain potassic and sodic elements also. Excessive use of farmyard and stable manure destroys the trees and causes them to gum. Steamed bone-meal or ground coprolites are excellent for Apricots. Half-a-peck to the rod is a proper quantity to use. It should be applied in February or March, every second or third year. Three and a half pounds superphosphate of lime and one and a half pounds muriate of potash, mixed, per rod, is a suitable manure for the Apricot. In silicious soils one pound nitrate of soda should be added. The first dressing should be applied early in March, and the second early in May. Borders in which Apricots are planted benefit if the surface is neatly forked over in the Autumn. Great care must be taken not to disturb the roots. The whole border should then be covered with short

stable or farmyard manure an inch or two thick. In March this should be lightly mixed with the surface soil. This will allow air, rain, and the sun's warmth to enter freely.

Feeding.

In May, June and July, or the early part of August, the trees should have two or three heavy waterings. Drainings from stables or cow-byres, diluted with water, are excellent for Apricots. After the fruit has been gathered, water or liquid manure may be given if the weather continue dry.

Mulching.

Heavy mulchings are not advisable, but a light covering of short, but not spent manure, is highly commended. A couple of inches in thickness of stable manure, freed of the coarse, strawy portions, applied at the end of May or early in June to the whole surface of the border, will prevent it "baking."

Training.

Owing to the tendency of Apricot branches to die off, fan-training is the most generally adopted. Young growths should be laid in thinly, but a fair amount of old wood should be reserved, as the blossom on the young wood may not set; it usually sets the first year, but sometimes very thinly. Single Cordon trees have been recommended for covering wall space quickly, but they entail more labour. They must be lifted and root-pruned as their condition requires.

Modified Fan.—A maiden Apricot tree consists *of one upright shoot with a number of side-growths* Such a tree should have its roots severed twelve inches from the stem at the end of September. When the leaves begin to fall, lift it and plant in the posi-

tion it is to occupy, cutting off the side growths close to the stem. When the leaves have fallen, cut the tree down to within ten inches of the ground. The following Spring encourage two shoots of equal strength and as nearly on the same level as possible. Keep all laterals pinched down to the first leaf.

Towards the end of September detach the roots fifteen inches from the stem, and when the leaves fall, lift and replant, shortening back each shoot to six inches. In Spring encourage two shoots from each branch, rubbing all others off. The next Spring encourage two shoots on each of the branches, keeping all side-shoots pinched down. Fan-trained trees generally have three primary branches—a leader and two side-growths.

Cordon Training.—The maiden tree intended to be trained in this form should have its roots severed in September, and be planted in the position it is to occupy as soon as the leaves fall. It should be planted aslant for training diagonally, and cut down to fifteen inches of the ground. Train the leader its full length without stopping, and pinch all laterals at the first joint throughout the season. At the end of August, if there is a tendency to push strong side-growths, the roots should be severed at twelve inches from the stem, lifting and replanting the tree in October. Cut the laterals off close to the stem and shorten the leader to about two feet.

Upright Cordons differ from the diagonal in requiring the leading shoot of each tree pinched at thirteen inches of growth to strengthen its base. Select from the shoots produced the best as leader, pinching the rest and all laterals at the first leaf.

Bearing.

Fruit is produced by the Apricot on the preceding year's wood, and on spurs of one or many years'

growth. The finest fruit, however, is borne on shoots a year old.

Routine Operations.

Protecting the Blossom.—Apricot blossoms from their early production are frequently damaged or destroyed. In mild winters they unfold in February. Damp is almost as inimical to a good set of fruit as is prevailing frost. Great harm may result through covering the trees in mild weather; protection is only required against frost. Covering Apricot trees too early is also highly inimical to the blossoms. The protection should remain over the trees by day when the weather is cold, wet or frosty; on fine days it should be removed. The protection should be continued until the trees are plentifully furnished with leaves, for the young fruit is as liable to injury from frost as the blossom is, if not more so. The fruit is not safe until Spring frosts are over.

Disbudding.—As the Apricot produces its fruit upon spurs, and on wood of the preceding year, young shoots should be trained in between the principal branches. All shoots springing from the front of the branches should be rubbed off closely, and early, so that a knife will not be required.

Thinning the Fruit.—This is a most important operation. When the young Apricots have set very thickly, the trees should be gone over three times: First, when the fruit is the size of horse-beans; second, when as large as a hazel-nut; and third, when as large as a small walnut.

General Summer Treatment.

Securing the growths as they advance is essential to prevent breakage. A sharp look-out must be kept for enemies. When a solution is used it should be thoroughly washed off with clean water. If the

weather be dry, water should be given, as the roots often suffer from dryness. When ripening, the fruit should be kept dry. Birds are very fond of ripening Apricots, and must be excluded.

The fruit should be gathered dry and cool. For dessert it cannot be too ripe. It should be handled very carefully, as it is very easily bruised.

Apricot Enemies.

Aphides.—Apricot trees are less liable to suffer from attacks of Aphis than any other fruit tree. They are rarely infested with Aphis, Red Spider, Thrips, or Scale. Aphides are easily destroyed by syringing with tobacco water, or dusting with tobacco powder. Thrips perish under tobacco water or tobacco smoke. Scale should be scraped off and the parts washed with a solution made by dissolving four ounces of soft soap in a gallon of hot water.

Red Bud Caterpillar Moth.—This is a grey insect, narrow-winged, with a whitish band dotted with grey. It appears at the end of Summer, and lays its eggs on the buds. The caterpillar attacks the buds, preferring the flower-buds to the leaf-buds. Spraying the trees with caustic soda and potash solution detaches, if it does not destroy, the eggs. Dusting the trees with freshly-slaked lime, whilst damp, when the buds begin to swell, acts as a preventive.

Apricot Moth.—The caterpillar of this Moth usually feeds on the foliage of fruit trees, especially the Apricot and the Pear. It ties two or more leaves together, causing them to curl. Pinching the rolled-up leaves between the thumb and finger, so as to crush the caterpillar, is a speedy means of destruction. Paris Green, one ounce to twenty gallons of water, may be used in the early stages of attack, but not after the fruit is the size of marbles.

APRICOT WEEVIL.—This is one of the largest and most destructive of weevils. The beetle feeds on the buds, young shoots, bark, leaves, blossom, and the young fruit of all fruit trees. At first it is a beetle without wings, and this is of great advantage in capturing them at night by the aid of a bright lantern. A sticky band placed round the stem prevents the beetles ascending the trees. All rubbish should be cleared away from the foot of the trees, as the beetles lurk under such in the daytime. All holes in walls should also be filled up.

SELECT VARIETIES.

EARLY MOORPARK.—Middle of August. Fruit medium.

KAISHA.—The tree is an excellent bearer; not a strong grower, but healthy.

LARGE EARLY.—Beginning of August. The tree is not liable to gum.

HEMSKERK.—Middle of August. A nearly-allied variety of Moorpark. Fruit larger.

MOORPARK.—One of the best, but very liable to gum. End of August and beginning of September.

NEW LARGE EARLY.—Early in August. Fruit large.

SHIPLEY OR BLENHEIM.—Beginning to middle of August. Tree hardy, healthy, and a good bearer.

CHERRIES.

THE CHERRY is said to have been first introduced into English gardens in the reign of Henry VIII. The fruiting varieties are closely related to the Wild Cherry, or Gean, a beautiful Spring-flowering tree or shrub common in the outskirts of woods in many parts of Great Britain. Coming into flower just as the first green leaves are opening on the deciduous trees, the Cherry forms a very beautiful object in the landscape. The garden varieties are in every way as beautiful as the Wild Gean. In Spring they are among the first of our fruit trees to come into bloom, when they wear a mantle of snow-like whiteness; in the summer they are bright with luscious berries; in Autumn their leaves turn crimson before they fall. The counties of Kent and Buckinghamshire are both famous for their Cherry orchards.

SOIL.

Like most other stone fruits, the Cherry likes a *soil of a calcareous nature, but it will do well where* the Wild Gean grows. In the woods of Hertfordshire some of the undergrowth of the Cherry trees is nothing but the Gean—a sure sign that Cherries will do well. The soil should always be well drained. Some soils are useless for Cherry cultivation, as they cause the trees to gum very much. If the soil is unsuitable a good border must be made. It should be composed of a mixture of loam, well-decayed

CHERRY, "MAY DUKE."

Ideal for a wall position. The flavour of the fruit is unsurpassed.

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Propagation.

Cherries are usually increased by budding and grafting. Seeds are used only to obtain stocks or new varieties. Layering, which is not an advisable or profitable method of increasing, is very seldom practised.

Seeds.—The stones may be sown as soon as the fruit is ripe, or they may be kept in sand until the following Spring. They should be sown in light soil, in drills two inches deep and eighteen inches apart. If the seedlings are to be proved for fruiting they require to be transplanted annually. The distance between the trees should be increased a little each year, so that they may receive plenty of light and air. The seedlings should be transplanted until blossom buds make their appearance, or they may be budded or grafted on older trees.

Budding.—Budding is best performed about the middle of July, and a dull day should be chosen for budding the stocks. Only well-ripened wood buds should be selected. If the buds fail, the same stock may be grafted in the following Spring. The buds should be tied up firmly, but not too tightly. The binding should be taken off in about a month's time. If it is left longer it will cut into the bud and spoil it. The buds ought to be put in from six to ten inches from the ground, and for Standards from four and a half to six feet. Budding is a much better method for increasing than grafting.

Grafting.—Great care should be exercised in choosing scions for grafting. Scions must be selected with wood buds only. Large, pithy wood should be discarded. The end of March or the beginning of April is the best time to commence grafting. Clean cuts are very necessary, as jagged cuts are very often the cause of gumming. Graft-

ing wax is much better than clay for covering the grafts with. The wax may be bought in tins of a useful size. Grafts should be put on at the same height as buds.

STOCKS.—Cherries are usually budded on the Wild Cherry or Gean. The Mahaleb is the best stock for Morello Cherries.

SITUATION.

The Cherry requires a sunny, open situation. Cherries do not succeed in damp, moist situations. Stagnant water at the roots is often the cause of excessive gumming. A southern or western aspect is very good for them. Morello varieties do very well on north walls. Most varieties grow well in an eastern aspect. The situation should always be slightly elevated, as Cherries will not grow well in low, damp places.

PLANTING.

Trees should be selected which are free from gum and long grass shoots. The roots should not be damaged or destroyed in any way, and the wood to be quite firm. Planting should be done just as the leaves begin to fall, and it may be continued until the following Spring. The soil must not be so wet as to form into a puddle when working. The roots to be spread out evenly, and some fine soil or leaf-mould should be used among them.

DISTANCES.

The Cherry makes a large spreading tree, and it should always have plenty of room. Standard trees for orchards ought to be planted from thirty to forty feet apart. In small gardens it may not be possible to allow forty feet between the trees, but they should

be given as much room as possible. Morello varieties may be planted from twenty to thirty feet apart, as they do not grow so vigorously. Bushes to be twelve feet apart, and fan-trained trees for walls from twelve to fifteen feet apart. Single diagonal Cordons should be two feet apart, and Single Upright Cordons eighteen inches apart. Double Cordons to be two feet, and gridiron-trained trees to be three feet apart.

Training.

Cherries may be trained as Standards, Half-Standards, Bushes, Fans, and Cordons.

Standards.—*This shape is best for planting in* orchards. The maiden tree should be securely staked to prevent damage and to secure a perfectly straight stem. The tree ought not to be "headed," as it causes a kink in the stem. In the second year the top should be pinched off about six inches above the place where the tree will be pruned in the Winter. Laterals to be pinched at the fifth leaf. Side-shoots may remain on the stem until September, when they should be shortened to four leaves. These at the Winter pruning must be cut off close to the stem. At this time the tree to be headed back to four feet for Half-Standards and six feet for Standards. They ought to be cut off to three good buds. In the third Spring three shoots should be encouraged, rubbing all others off. The growths will be equal in strength, and they ought to be cut back to three good buds in the Winter. In the fourth year two shoots to be trained forward from each branch. All other growths to be rubbed off, as the stem must be quite clear and straight. Any laterals must be stopped at the first leaf. Each shoot to be shortened to six inches at the Winter pruning. In the fifth year two shoots should again be secured from each branch, and the

tree will then consist of twelve shoots. This is usually sufficient training for most trees, but they must be properly pruned or thinned to keep them in shape.

Bushes.—The maiden should be cut back to twelve inches in the first Winter. About five shoots to be encouraged in the following Spring. These will be allowed to grow their full length, but should be cut back to about nine inches of their base in the Winter. The shoots to be distributed equally round the stem to form a symmetrical bush. Any laterals to be cut back to about two inches of the stem in the Winter. The main framework of the bush has now been formed.

The trees ought to be lifted annually until they are three years old. By this means they will be able to maintain a good supply of fibrous roots. Lifting also induces them to fruit sooner.

Fan-trained Trees.—For fan-trained trees the maiden should be cut back to nine inches of the ground. The following Spring three good shoots should be secured, and all others rubbed off. These to be shortened to three sound buds in the Winter. In the Spring of the second year three shoots to be encouraged from each of the young side branches, and one from the centre branch or leader. The following Spring a young growth may be trained outwards on each side of the leader and on a level with its base. The tree now consists of nine strong shoots, and these form the foundation of the tree. From these, smaller shoots may be trained in to fill up spaces or to cover a given surface of wall. Laterals to be pinched to four leaves in the Summer and cut off to one or two buds in the Winter.

Cordons.—This is not a much-used method of training, but Cordons are very useful for filling

spaces between fan-trained trees until they have covered their wall space.

The maiden should be cut back to about twelve inches of the ground. In the Spring several shoots will push. Only the strongest and straightest of these should be retained. All others should be pinched back. The leader should be trained forward its full length. Laterals to be pinched in the Summer to four or five leaves and cut back to two good buds in the Winter to form fruiting spurs.

Summer Pruning.

At all times the Cherry should be pruned as little as possible, as pruning causes gumming. Long shoots should have some of the buds removed, so that the growths will not be too thick. Where it is possible to tie in new wood the old wood should be discarded. What is termed Summer " pruning " may be performed in June and July.

Training Morello Cherries.

The true Morello bears fruit on slender shoots of the preceding year's growth. These long shoots should be tied in as much as possible if a good crop of fruit is desired. If the buds are too close on the shoots (which would make the growths too close when nailed), some of them should be rubbed off All old and irregular wood should be removed.

Winter Pruning.

Morellos.—As the fruit is produced on the young wood, the growths which were made in the Summer should not be removed. These growths were only tied in in the Summer so that the net might be put on evenly, but they should now be securely nailed in their proper position. Irregular, ill-shaped

branches and old wood should be removed. The wood which has borne fruit this season should also be removed and young growths nailed in. The knife should be used as sparingly as possible, as severe pruning causes the trees to gum.

Other varieties of Cherries are pruned in a similar way, but (unlike the Morello) most of the fruit is borne on spurs, and this should be remembered when pruning. The Sweet Cherries require more space than the Morellos, as the growths are much larger.

MANURES.

In good soil Cherries produce fruit in abundance for years without any manure. It is best to give the trees a little manure each year, so that they will not become weak. In poor soils an annual dressing of good solid manure may be given. The manure should be spread on the ground early in the Winter, and should be left there to decay. The Cherry should be manured very moderately in Winter. Good gardeners rely on the Summer treatment mostly to obtain fine fruit.

Of the artificial manures bone-meal is the best. A good sprinkling to be applied to the ground at the fall of the leaf. Any good manure, such as Thompson's Vine and Plant Manure, or Clay's Fertilizer, will benefit the trees greatly. Directions for the use of these are given on the tins.

GENERAL MANAGEMENT.

PROTECTING THE BLOSSOM.—In early seasons and in warm situations the blossom is liable to be injured by Spring frosts. The trees may be lightly protected, but they should never be covered over thickly. A single thickness of tiffany spread across the surface of the trees, but not touching them, is quite suffi-

cient protection. The Cherry detests close, moist air. The protection should be removed as soon as danger from frosts is over.

THINNING THE FRUIT.—All young fruit trees are the better for having the fruit thinned, and the Cherry is no exception to the rule. Where the fruit has set very thickly it should be thinned to about one-half. Small, ill-shaped fruit should be removed first. Where the fruit has been thinned it is always the largest and finest.

FRUIT DROPPING.—Frost is usually said to be the cause of this, and that is why the protection for the blossom should not be removed until all danger from frost has passed away. Dryness at the roots will also cause the fruit to drop. Trees which rarely set a crop of fruit should be given a good supply of liquid manure just before the blossom opens. Trees in dry situations and in dry weather should be given water and liquid manure in abundance.

FEEDING AND WATERING.—Liquid manure should not be given in wet weather. A few good soakings in hot, dry weather will benefit weakly trees and those carrying heavy crops. If the weather is dry, the trees may be given another good soaking in August or September to help them along for the Winter.

Cherry trees require abundance of water in dry, hot weather, but it ought not be given in dull or cold weather. When the water is given it ought to be applied in quantities to thoroughly moisten the soil. A sprinkling on the surface of the soil is not the least good.

TOP-DRESSING.—A mixture of equal parts of good loam, wood ashes, and half-decayed manure makes a very good top-dressing. To this add one pound of bone-meal per tree. This mixture to be put round

the trees about two inches thick in the early Spring.

PROTECTING THE FRUIT.—In large gardens a gun is a very useful thing towards helping to protect (and save) the fruit. Nets are essential, as many birds are very fond of ripe or unripe Cherries, so long as they are slightly coloured. Hexagon netting will exclude flies and wasps. The nets, which must always be put on just as the fruit is changing colour, should be stretched tight about a foot from the surface of the trees. In very mild seasons Morellos on a north wall will hang until late in the Autumn.

GATHERING THE FRUIT.—Fruit for dessert must always be gathered very carefully with the stalk. Cherries should be detached with a pair of scissors, as when they are pulled off the fruit buds for the following year usually come with them. Fruit for packing should be gathered with the full length of the stalk. If the Cherries are gathered when just ripe, and suspended in a cool fruit-room, they will keep fresh for several weeks. The keeping qualities depend greatly on the weather, but the Cherry never keeps for a great length of time.

MULCHING.

If the trees are given a mulch of good short stable or farmyard manure just after the fruit has set, it will help them greatly. Light mulches are essential. Heavy mulches do more harm than good. If the weather is dry at the time of mulching, the trees may be given a good soaking of water beforehand.

DISEASES.

The Cherry is not subject to many diseases, but Gum is the worst and most disastrous of them all.

GUM.—This is a highly-contagious disease. Patches of thick, brown, jelly-like Gum form on the

trees, and after a time become very hard. It also attacks the fruit. Gum attacks trees grown in stiff clay, in land stagnated with water, in shallow soil overlying chalk, and in a dry, gravelly soil. Loose, rich soils also induce Gum, as do damp, low situations. Negligent pruning also invites the disease. The weather may also have a lot to do with attacks of Gum, such as a very wet season, or sudden chills in Spring. All the causes, except the weather, can (and should be) remedied. If the trees are very badly infested with Gum, they ought to be removed as soon as possible. I think it is waste of time and material to try to cure badly-infested trees. If the attack is a light one, the Gum should be thoroughly scraped off, and the wounds should be dressed with grafting wax.

Leaf Spot.—This disease, which is caused by a very small fungus, appears in the form of yellow spots on the leaves. As much as possible the affected leaves ought to be collected and burnt. The trees may be syringed with a solution of sulphate of copper once or twice before the buds burst. One ounce to two gallons of water will be sufficient strength.

Fruit Spot and Speck.—These two diseases sometimes attack the fruit of the Cherry. They are similar in appearance. Spot appears in pale salmon-coloured patches, and Speck in small, yellowish-coloured specks. Both attacks should be well syringed once or twice with *Berger's sulphur lime wash*. *This may* be used on the trees when they are dormant or when they are in full leaf.

Mildew.—This may be caused by cold weather, and by very wet or very dry soil. The soil should not be allowed to become sodden and heavy, but on the other hand it should not be allowed to form into a dry powder. For attacks of Mildew, sulphur is a

very good thing, the trees to be well dusted with it on a still evening, so that it will not fly about so much.

ENEMIES.

APHIDES.—Of the Aphides, Black Fly is the worst. It is a small, sticky black fly, which clings to the young growths and the fruit. If the trees have been sprayed in the Winter with caustic alkali, Aphis will be very scarce. As a preventive of it appearing, the trees may be sprayed when the fruit is small with Quassia Extract or Nicotina. These remedies apply to all kinds of Aphis. If Aphis should appear when the fruit ripe, or nearly so, the Quassia or Nicotina should be thoroughly washed off the next day.

SCALE AND RED SPIDER.—These two pests are quite common indoors, but they very seldom attack outdoor trees. If either should make its appearance it may be treated the same as for "PEACHES."

CATERPILLARS.—Various caterpillars devour the leaves and sometimes the young fruit of the Cherry. The caterpillars of the Winter Moth, Mottled Umber Moth, and the Small Ermine Moth are the worst. The trees should be well syringed at intervals of three or four days with Paris Green or Nicotina. One ounce to twenty gallons of water is sufficient strength of the former, and directions for the use of the latter will be found on the tin.

SLUG-WORM.—This is the larvæ of the Selandria Saw-fly. It is a small, shiny, slimy greenish-black caterpillar, with a large head, and it is a very voracious feeder. It feeds on the upper surface of the leaf only, leaving the veins and under-surface, which turn brown. Spraying the trees does not kill the worms, as they possess the power of cleansing themselves. The most effectual remedy for this pest is tobacco powder. The powder sticks to them, and they cannot remove it.

In the Winter the soil about the trees may be removed to a depth of three or four inches. Fresh soil should be placed about them. In this way the pupæ are destroyed.

SELECT VARIETIES.

GEANS.—Fruit heart-shaped.

BLACK GEANS.—Flesh dark; juice coloured.

WATERLOO.—Fruit very rich and juicy. Skin almost black. July.

RED GEANS.—Flesh pale; juice uncoloured.

BELLE DE ORLEANS.—Fruit medium. Skin bright-red, yellowish in the shade. Rich and juicy. Middle of June.

HEARTS.—Fruit heart-shaped and firm.

BLACK HEARTS, OR BIGARREAUS.—Flesh dark; juice coloured.

BLACK TARTARIAN.—Fruit very large and sweet. A good bearer. July.

RED HEARTS.—Flesh pale; juice uncoloured.

BIGARREAU NAPOLEON.—Fruit very large. Yellow and crimson. A prolific bearer. Beginning of August.

FROGMORE EARLY BIGARREAU.—Fruit large and juicy. Pale yellow and red. Beginning of July.

GOVENOR WOOD.—Fruit large and mottled. Excellent bearer. Beginning of July.

GRIOTTES.—Fruit round.

BLACK DUKES.—Flesh dark; juice coloured.

MAY DUKE.—Fruit long and juicy. Dark red. An excellent bearer, free grower, and hardy. July.

EARLY RIVERS.—Fruit very large and black. Middle of June.

RED DUKES.—Flesh pale; juice uncoloured.

LATE DUKE.—Fruit large and bright-red. Juicy and rich. August.

AMBER, OR WHITE HEART.—Fruit medium. Sweet and well-flavoured. End of July.

MORELLOS.—Branches long, slender and drooping.

BLACK MORELLOS.—Flesh dark; juice coloured.

MORELLO.—Fruit large and very dark red. The best of all Cherries for culinary purposes. An abundant bearer and very hardy. July.

RED MORELLOS, OR KENTISH.—Flesh pale; juice coloured.

KENTISH.—Fruit medium and red. A culinary variety, but not so good as Morello. July.

CURRANTS.

THE CURRANT is a near ally of the Gooseberry. It is found wild in woods and thickets in various parts of Asia, Europe (Britain), and America. There are three distinct types—the Black Currant, or Quinsy Berry; the Red Currant, Wild Currant, or Garnet Berry; and the White Currant, which is a variety of the last species. For cultural purposes Currants are divided into two sections—Red and White, and Black.

RED AND WHITE CURRANTS.

The Red Currant is essentially a culinary fruit. The White Currant is not in great demand.

SOIL.

Red and White Currants succeed in any good soil eighteen inches deep, but prefer rather strong loam if well drained. Lighter soil will grow good fruit if properly manured. With mulching, Red Currants can be grown on sandy soils, where Black Currants would not thrive.

SITUATION.

Red Currants are very hardy, thriving in bleaker positions than the Black Currant. They afford late crops trained against walls or fences with north aspects. Bushes give the best results in open situations, with shelter from cutting winds. Red Currants prefer high to low sites, yet succeed in the latter if the land is properly drained.

Arrangement.

Both Red and White Currants are planted in single lines to form boundaries. Standard Currants can be grown six to nine feet apart along the margins of paths, where they are both ornamental and useful. Against walls or fences trees may be planted at various distances. Bushes of free-growing varieties in the open should be placed six feet asunder in rich soil. Compact-growing varieties may be placed closer.

Planting.—Planting Red and White Currants is the same, in time and manner, as described for Black.

Training.

Bushes.—The bush form is that usually adopted. Early training is the same as for Black Currants. In poor soil, where close planting is practised, six main branches will be sufficient, while in good soil and at a greater distance, nine to twelve may be left as leaders. They should be equally placed around the stem. The centre of each bush should be kept open. Any shoots that tend inwards, or to cross others, should be cut out. The main branches ought not to be nearer each other than nine inches. The ends of the branches should be shortened between six and nine inches at every Winter pruning. A number of side-shoots push each year from the main branches. These should be topped in June to five or six inches.

Pyramids.—In forming these, the central branch of the young tree should be cut back to nine inches in the Autumn, and the other two shortened to six inches. Three growths must be encouraged from the leader the following year, and two from each of the side branches, all others to be pinched at the third leaf. In the Autumn the leading branch should be shortened to nine inches, and the other branches to six inches. The pyramid will now be from two feet

three inches to two feet six inches high, and one foot through at the lower tier of branches. When it is as high and wide as desired it should be closely spurred in.

STANDARDS.—If a cutting be taken eighteen inches in length, and not topped, all the buds removed from the lower six inches, and this part inserted in the ground, the leading shoots secured to a stake and the side-shoots pinched at the second leaf, it will make rapid progress towards forming a stem the first year. By continuing the practice the stem thickens evenly, the pinching of the side-shoots pushing the leader ahead. After this has attained a height of four feet, it should be topped a few inches lower in the Autumn, and in the following Spring three to five shoots will push to form the head. Shortening these to nine inches in the Autumn will cause them to fork. From these should be selected suitable shoots to form a symmetrical head. Standard Currants should always be securely staked.

UPRIGHT-TRAINED TREES.—Encourage one upright shoot from a cutting. If it grow strongly, cut it back to six inches; if weakly, cut it down to three inches of the ground in Autumn. The object is to secure two strong branches for training to left and right in the Summer, shortening them to about fourteen inches in the Autumn. From these train four upright shoots, having them about nine inches apart. Allow these to grow full length, and shorten them in the Autumn to eight or nine inches. Train a leader from each every Summer, and shorten them to the height named every Autumn. The laterals will need stopping and spurring in.

CORDON TREES.—Single or double cordons for walls or fences are easily formed by cutting back a young plant with a strong shoot to twelve inches of

the ground. Train one shoot from it upright the following year, pinch the side-growths, shorten the upright shoot to nine inches in the Autumn, and the laterals to ½ inch of their base. Repeat in the following season until the cordon attains the height required; then keep the growths closely spurred.

A double cordon has two main stems trained nine inches apart, the leaders and side-growths being treated the same as for single cordons.

Pruning.

There are two kinds of pruning—Winter and Summer. Summer pruning is of essential value, as by shortening the growths their base buds are fed. The growing shoots are often infested with Aphides. These pests are, to a certain extent, got rid of by Summer pruning, if the prunings are promptly burned. Pruning admits light and air into the interior of the bushes.

Winter pruning consists in cutting back all side and spur shoots to within ½ inch of their base. Cutting out old branches and supplanting them with young secures the finest and heaviest crops over the greatest number of years. Pruning is best performed in the Autumn, directly the leaves have fallen, but Currants are so hardy that the work may be done at any time, up to the time when the buds commence swelling.

Winter Culture.

After pruning, clear away the rubbish. If there are any suckers, remove them close to the root-stem, not leaving any buds. Should the bushes be infested with moss or lichen, dust them with quicklime after rain or whilst damp. This repeated every second or third year keeps the bushes clean. Draw the earth

RED CURRANT, "PANSHANGER LATE."

Fruit prolific and of a large size. Will hang till October if bushes are well netted.

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from around them, supply manure in its place, and cover this over lightly with the soil taken away.

General Management.

Manures.—When stable or farmyard manure cannot be obtained artificials may be used. Bone meal 3½ cwts., Kainit 1½ cwts., mixed, per acre, or two ounces per square yard, is a very substantial mixture, often "lasting" until the third year. Apply in Autumn or February.

Superphosphate of lime, 2 cwt., nitrate of potash, 1 cwt., sulphate of lime, 1 cwt., mixed, per acre, or one and a half ounces per square yard. Apply in March or early April.

Nitrate of soda is also a good manure, 2½ cwts. per acre, or one ounce per square yard. Use from the buds swelling to the fruit setting.

Common salt applied in March is a very useful manure. In light soils 5 cwt. per acre, or two ounces per square yard, should be applied.

Mulching.—Because Currants are easily grown they are apt to be neglected in poor soils. A light mulch of coarse manure, applied after the fruit has set, greatly aids the crop. If liquid manure is given, too, the berries will be doubled in size.

Thinning the Fruit.—This is seldom practised, but to secure extra-fine produce a selection should be made of the largest and most evenly-set bunches. Cut away the rest with scissors, leaving each bunch clear of its neighbour.

Protecting the Crop.—Blackbirds and thrushes must be kept at bay by placing nets over the bushes. Herring nets suffice for these birds, but pilchard nets are necessary to exclude the smaller birds, one of the greatest pilferers being the Redbreast. The

protection should be placed over the bushes before the fruit changes colour.

GATHERING THE FRUIT.—The fruit should never be gathered when wet. If it has to be picked when wet it should be placed in a room to dry.

KEEPING THE FRUIT.—This is practised largely in private gardens with Red and White Currants. The fruit keeps longest on north walls. Covering the bushes with clean Archangel mats is a very bad practice as regards the bushes, but excellent for keeping the fruit.

BLACK CURRANTS.

SOIL.

The Black Currant delights in a deep, rich, mellow loam, preferring alluvial soils on a cool base. It utterly fails on dry, sandy or gravelly soils, moisture being indispensable for its well-being. Clay soil mollified with sand is suitable for the Black Currant, and rather strong loam intermingled with flints produces the finest crop of fruit. Where water lodges they will not flourish, though they grow on damp land. The ground should be stirred as deeply as the soil allows, breaking up the bottom; and if the soil is poor or light, a liberal amount of well-decayed manure should be mixed with the top spit. Ground in good heart will grow Black Currants well for years without manure if they are not roughly dug amongst with a spade so as to destroy the surface roots.

ARRANGEMENT.

Black Currant bushes are frequently planted in a single row in borders along the side of paths, or next the boundary of gardens, where they spread more and produce finer crops. A space of five feet

should be allowed between bushes. A foot greater distance between the rows than the bushes are in them is distinctly advantageous. Nothing is gained by overcrowding.

PROPAGATION.

The Black Currant is readily grown from cuttings. These may be twelve to fifteeen inches in length of straight, firm, young wood. All the buds should be cut out, except those intended to form branches. The cuttings should be inserted firmly, six inches deep and six inches apart, in rows one foot asunder, as soon as the leaves can be shaken off in the Autumn. They should be cut transversely below a joint and the top removed. When the shoots grow in the Spring, three should be encouraged on plants to be grown with a clean stem, rubbing all others off. They should be ready for planting the Autumn following their insertion.

SITUATION.

The finest fruit is produced on bushes in open, yet sheltered, situations. Bleak, high and dry sites will not grow Black Currants profitably. They succeed fairly well in moderate shade. Shelter from strong winds is absolutely essential. Exposed sites may be protected by a hedge. The Black Currant requires moisture, and thrives in ground by the side of ditches, brooks, ponds, and other damp places where no other fruit will grow. It also succeeds at high elevations, giving bountiful crops in sheltered positions upwards of five hundred feet above sea-level.

PLANTING.

The best time to move Black Currants is directly the leaves have fallen, as the earlier they are planted the sooner they become established. They may be

safely transplanted during mild weather from November to February. A little rich compost mixed with the soil, when covering the roots, contributes to a good start.

Training.

Two methods are followed in training Black Currants—viz., Clean-stemmed Trees and Natural Bushes.

Clean-stemmed Trees.—Cutting the branches of the young tree back to about four inches of their base, when transplanted, causes two or more shoots to push from each branch the following Spring. In the Autumn of the second year the tree will consist of six shoots. These should be cut back to six inches of the previous year's wood, and the smaller shoots closely shortened. The tree will produce fine fruit freely the fourth year.

Natural Bushes.—The cutting inserted with all its buds will push shoots strongly from its upper buds the following Spring. The stronger need only be shortened about six inches from their base, the smaller shoots being left intact. Fruit will be borne freely the third year. The bush is the most durable form in which to grow Black Currants if due care is taken in thinning the suckers as may be needed.

Pruning.

The Black Currant bears the finest fruit on wood of the previous year, but it also produces freely on the stubby shoots and spurs along the branches. Pruning should be confined to cutting out all ill-placed growths and shortening those which are irregular. A succession of bearing wood will then be maintained.

Feeding.

Manure from cow-stables is especially serviceable in the production of Black Currants. It should be

applied in the Autumn, after pruning, pointing it in lightly with a fork. A space all round each bush as far as the roots are matted at the surface, one or two feet from the stem, may be covered with manure, and this in turn covered with a light layer of soil. When the bushes are full-sized it is the more simple plan to spread it on the surface and leave it. The roots must never be disturbed. The mutilation of roots is fatal to healthy growth.

MULCHING.—Mulching the ground over the roots with littery manure before the dry weather sets in is a great help, and liquid manure given when the fruit commences to swell improves it greatly. Water is a necessity in dry soils and seasons for perfecting the crop.

DISEASES.

Currants are not subject to many diseases, and those seldom inflict much injury. The Gooseberry Fungus rarely attacks Currants, except when adjacent to Gooseberries. It causes discoloured spots on the leaves, and renders the fruit useless. See "Gooseberry Fungus."

ENEMIES.

Aphides, Caterpillars, Gall Mites, Shoot Grubs, and Woolly Scale, are the chief pests infesting Currant bushes.

THE BLACK CURRANT LOUSE.—This attacks the young shoots and leaves, and becomes firmly seated on the underside of the leaves, stunting the growths and spoiling the fruit. In its young state the Aphis is much sought after by the common Sparrow.

THE RED CURRANT LOUSE.—Fastens on the points of the shoots and clusters on the underside of the young leaves. About the end of March or early in April they are very active on the buds, and that is

the time to attack them. The bushes should be well-dusted with quicklime at the time named. Bushes thus treated are rarely infested with Aphides. Tobacco is one of the oldest and best remedies. Tobacco powder causes no smell and effects their destruction quickly.

CATERPILLARS.—The caterpillars of the Magpie Moth and the Gooseberry Sawfly sometimes do a great deal of injury by stripping the bushes of foliage. Also the caterpillars of the Winter Moth. They may be destroyed by spraying with Paris Green.

BLACK CURRANT GALL MITE.—Though very small they do a great deal of injury to the bushes by feeding on the buds and causing them to swell. Attacked shoots should be looked for every Spring, cut off, and burned at once. It should also be widely known that no Mite can withstand sulphur, particularly bisulphide of calcium. Syringe the bushes thoroughly directly the fruit is gathered with bisulphide of calcium. Boil one pound of flowers of sulphur with one pound of quicklime in one gallon of water. When cool bottle, and for ordinary use mix one pint with twelve gallons of water.

If the fruit is not particularly wanted for one season, the best way to destroy the Mites is to cut the bushes over close to the ground. They should be burnt immediately. The old stems will throw up strong young shoots, which will bear fruit the second year. A good stock of young trees should always be maintained. Infested bushes should never be propagated from.

CURRANT SHOOT GRUB.—Currant bushes sometimes lose branches, which wither and die, without apparent cause. This is occasioned by the caterpillar of the Currant Clear-wing Moth. The Moths will not come near bushes which have been sprayed

with the following compound: Caustic soda, ½ lb.; resin, 4 lbs. Dissolve the caustic soda in half a gallon of boiling water and add the resin slowly. Boil until dissolved, and then add two and a half gallons of water. Use one quart to three gallons of water.

WOOLLY CURRANT SCALE.—This pest appears about midsummer, and is readily destroyed by spraying with resin compound as for Shoot Grub. Trees against walls and in warm situations are most liable to infestations.

RED SPIDER, which occasionally infests Currant bushes, should be syringed with a mixture of soft soap, caustic soda, and sulphur.

THRIPS should be syringed with tobacco juice diluted with water. Dusting with quicklime when the bushes are damp will remove moss and lichen.

RED VARIETIES.

LA VERSAILLAISE.—Berries very large. Growth strong.

RABY CASTLE.—Berries medium. Good cropper.

RED DUTCH.—Free and abundant bearer. Bush vigorous, erect, yet compact.

REINE VICTORIA.—Productive. Spreading growth.

FAY'S PROLIFIC.—Large, dark-red. One of the best.

PANSHANGER RED. — New seedling raised by Author. (See photo facing page 72.)

WHITE VARIETIES.

GROSSE BLANCHE.—Free bearer. Growth moderate; rather spreading.

WHITE DUTCH.—Moderate, compact grower, and free bearer. Berries somewhat transparent.

WHITE VERSAILLAISE.—Berries large. Strong grower and excellent cropper.

BLACK VARIETIES.

BALDWIN.—Berries very large. A great favourite in East Kent.

BOSKOOP GIANT.—One of the best. Supposed to be immune from Gall Mite.

LEE'S PROLIFIC.—Fruit large and sweet. Early and a great cropper.

VICTORIA.—Vigorous grower. Fruit large. Rather late.

BLACK CURRANT "BALDWIN."

Bears thick cluster of fine-sized fruit.

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FIGS.

THE FIG is a native of the Mediterranean region. It ranges from Syria to Eastern Persia and Afghanistan. It is a very old, historical tree, and is mentioned many times in the Bible. The Romans are said to have introduced the Fig into Britain and cultivated it in the South.

The flower of the Fig is never seen, as it is contained inside the fruit. The whole of the tree abounds in a white, milky juice, even to the fruit, when in its young state. The Fig forms a large part of the food of the Italian and Spanish peasants, and also of the Africans.

Many of the failures with the culture of outdoor Figs have arisen from the idea that they require the same treatment as those indoors. This is not so; they should be treated quite differently.

SOIL.

The Fig outdoors likes a warm, dry soil, quite different to the Fig indoors. The soil should be thoroughly drained, and it should not be a rich soil. A mixture of light loam and lime and brick rubbish is very good for them. Two parts lime rubbish should be added to the loam, and one of well-smashed bricks, and this should be put down to a depth of twenty-one inches. In the open-air, I think the soil cannot be too poor or too dry.

SITUATION.

A warm, dry situation facing south or southwest is the best for outdoor Figs. They may also

be planted against a south wall, and I have some facing east. They are on two open gates, and bear heavy crops in September.

Propagation.

The Fig may be increased by seeds, layers, suckers, cuttings or eyes.

Seeds.—Although Figs are easily raised from seed, they take years to fruit, and consequently this is not an advisable method of increasing. Improved varieties may be raised from seed.

The seed should be taken from the pulp, and sown in light soil in January. The seedlings should be grown as quickly as possible. If they are grafted on an old tree they may fruit in the third year. On their own roots they will not fruit until the seventh year, and perhaps not then.

Layers.—This is a method of increasing which is not much used. A branch of the trees should be bent over, and the previous year's growth should be covered with fine soil. The shoot to be layered should be cut halfway through below a joint. The soil about the layers should be kept slightly moist until they have rooted. The layering should be done early in the Spring, and by the following Autumn the layers should have formed fine plants.

Suckers.—Young shoots often spring from the crown of the tree, and if carefully lifted with a few roots they will soon make fine plants. They should be planted at once after detaching from nine to twelve inches apart, in rows two feet asunder.

Cuttings, or Eyes.—This is the most practical and the simplest method of increasing Figs. Ripe, young wood only should be used for cuttings, and the shoots may be cut into two-bud pieces or single eyes. The best way of taking cuttings is a shoot

of the previous year's growth taken off with a heel. The cuttings should be short-jointed and stubby. Long, unripened shoots are of no use. The cuttings should be taken off before the sap begins to flow. January and February are the best months to insert them. If they are taken when the sap has begun to flow the milky juice prevents rooting. All the buds should be removed from that part of the cutting which will be under the soil. The cuttings should be put in a warm border and kept moist until rooted.

Arrangement.

Trees planted on trellises or against walls should be planted from twelve to fourteen feet apart. Standards should be planted ten feet apart in rows twelve feet asunder. It is unprofitable to have a large plantation of Standard Figs in this country. A good warm wall is the best place for them.

Form.

In this country form is very seldom considered, most trees being a kind of rambling fan-shape. The Fig outdoors is best left to itself. I have frequently noticed that trees which have been well pruned each year bear no fruit, while others which have been left to themselves bear a heavy crop each year. The tree should not be allowed to become too thick, but when thinning only the old wood should be cut out. The young wood should always be left for bearing. This is essential for a successful crop.

Planting.

The best month to plant Figs is November, but if trees which have been in pots are to be put out, they should be planted in April. The soil should be made quite firm about them when planting. If the

weather is dry the trees may be watered after planting, and a light mulch should be spread over the ground before the hot weather sets in. Those trees which were planted in November should have straw or a dry litter of any material spread over their roots to keep out the frost and to help them to get a hold on their new position.

Bearing.

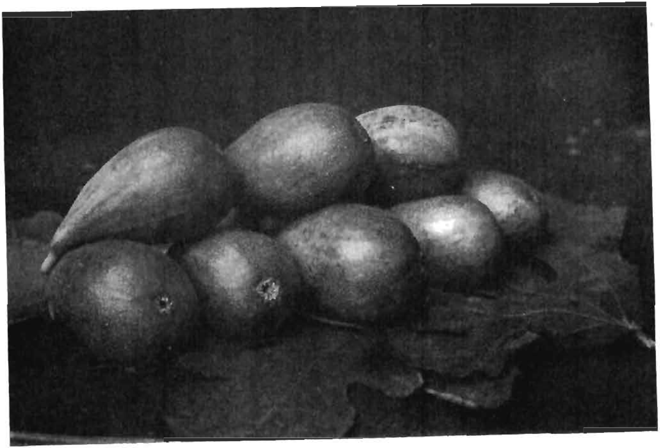
The Fig produces its fruit in quite a different way from other fruit trees. Outdoors it will only bring one crop to perfection, but inside it will ripen two, and sometimes three crops. The first crop is borne on wood of the previous year's growth, and the second and third crops are borne on the current year's wood in the axils of the leaves. The first crop ripens outdoors in August and September, but the second and third crops never ripen outdoors in this country.

Pruning.

The reason why so many Fig trees fail to bear fruit is that they are pruned far too severely. There is an old proverb which says: "A pruned Fig tree never bears," and this is only too true—in the case of outdoor Figs at any rate. When the trees are pruned, in most cases the young bearing wood is cut off, and when this is done the trees cannot be expected to fruit. Pruning should be confined to cutting out old and weak branches. If the space is limited the trees must be kept within bounds, and in this case pruning is quite another matter. In any case very little pruning should be done.

Root Pruning.

Figs outdoors seldom need root-pruning. If the growth is very vigorous the trees may be lifted and the roots shortened. A small brick wall may be built



FIG, "BLACK PROVINCE."

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about three feet from the stem of the trees to prevent the roots spreading too far, but I repeat, this is seldom necessary for outdoor Figs. The old-fashioned plan of building a small pit in which to plant the trees is not of much use.

Preparing Borders.

As Figs will thrive in almost any loamy soil, it is usually unnecessary to prepare borders, and to mix soil and make up very rich borders is a real waste of time. If the soil is inclined to be light and crumbly, old mortar rubbish should be added to the border. Borders for Figs need never be more than three feet wide, and the trees will grow quite well in a smaller space than this. The depth of the borders should be from two to three feet, but not more than three feet.

Manures.

For outdoor Figs a starving régime is the key to successful fruiting. There is not another fruit tree which will grow so well with so little attention as the Fig. In very hot, dry seasons the trees may be given one or two soakings of liquid manure diluted with water.

Mulching.

The best thing for the Fig is a light mulch of good, short stable or farmyard manure. Heavy mulches do no good. The mulch should be applied when the fruit has fairly set, and it should not be more than two inches in thickness.

Watering.

Figs outdoors only need watering in very dry seasons. The water should be applied when the

fruit is swelling, and when the fruit begins to ripen no water should be given. A wet soil is harmful to the crop when ripening.

PROTECTION IN WINTER.

In very severe weather protection may be afforded, but the trees are best without it. The Figs I have come in contact with have always stood the Winter, unless the thermometer registered anything below zero. When it gets as low as this it is not natural for Figs to live, and protection is of no use.

I do not advise protection at all, as it makes the wood very soft, and when the protection is removed the sudden transition is not good for the trees.

DISEASES OF THE FIG.

The Fig is one of the cleanest fruit trees we have, only two diseases afflicting it, and these occur mostly on indoor trees. Outdoor trees are very seldom affected with disease.

SPOT.—This affects the half-ripe fruits, and appears as a salmon-coloured spot near the eye of the fruit. It is most prevalent where the trees are grown in low, damp places on heavy soil. There is no cure for this disease, but if the root system is in perfect order, and the trees are not exposed to draughts, it is very seldom seen. If the affected fruits are picked off and burned it will prevent the disease spreading.

CANKER.—This disease is very rarely seen outdoors, and I have never had any trees affected with it. Indoor Figs are subject to it, and it is caused by excessive moisture.

ENEMIES.

SCALE.—This is the only small enemy the Fig has outdoors. BROWN SCALE and FIG SCALE sometimes attack the trees, but not often. Attacked trees should

be well syringed with a paraffin emulsion just before they are coming into leaf. A day or two after syringing the dead Scale may be rubbed off with a blunt stick. If the trees are very badly infested they should be taken from the wall or trellis and painted with a mixture of clay, soft soap, and sulphur. Mix one pound of soft soap and one pound of sulphur with about five pounds of clay, and rub this mixture well into each branch.

BIRDS.—Birds are very fond of ripe Figs, and the only protection from these is a net. It should be of a sufficiently narrow mesh to keep out the small birds.

WASPS, HORNETS, AND FLIES.—These are all very fond of ripe Figs, and often do a great deal of damage if not guarded against. Clear glass bottles filled with syrup and water, or sugar and beer, make excellent traps for all three pests, and hundreds are destroyed in a single day if the weather is warm.

SELECT VARIETIES.

BROWN TURKEY.—The best Fig for outdoor culture. Fruit large. Richly flavoured. Brownish purple. Ripe September.

WHITE MARSEILLES.—Fruit large and round. Pale yellowish-green. Very rich. End of August to beginning of September.

BRUNSWICK.—A good outdoor variety. Large and of excellent flavour. September.

BLACK PROVINCE.—Fruit small and oblong. Very rich and juicy. Abundant bearer. Ripe September.

GOOSEBERRIES.

THE GOOSEBERRY is the most generally useful of all the soft fruits. A native of Northern Europe and Siberia, it is found wild in many parts of Britain, and, being very hardy, thrives in most soils. In the green, unripened state it is much valued for tarts and for bottling, coming into use at a time when fresh fruit is scarce. Gooseberry fulle is another popular way of treating the fruit in a green state.

Lancashire in the past has been famous for its Gooseberries, as the names of many varieties indicate, but the "big Gooseberry" is now less popular as a show and press diversion than was the case of yore.

SOIL.

The Gooseberry is not particular as to soil, but a rich, deep loam, rather moist than dry, is the best soil for it. The soil should be well drained. Stagnant water at the roots is usually the cause of the fruit and leaves turning yellow and falling off.

SITUATION.

An open situation is essential to secure a good crop of fruit, but the plantation should be sheltered from cold north and east winds. Moist, but well-drained situations are far better than hot, dry sites. In the North the Gooseberry should be planted with a southern aspect, but in hot, dry localities a northern aspect is preferable. In hot localities Gooseberries are often planted near Apples or other tall trees to

afford them a little shade. In ordinary localities the Gooseberry requires a moist, open and sunny situation.

ARRANGEMENT.

For general use the bush form is the best, and in most parts this is the form preferred. Bushes should be planted nine feet apart in rows six feet asunder. A small standard may be planted between the bushes to utilise the space. If standards are planted by themselves they should be six feet apart in rows six feet asunder. Single cordon Gooseberries for walls or fences should be planted eighteen inches apart, double cordons three feet apart, and gridiron-trained four feet apart.

PROPAGATION.

Gooseberries may be increased by seeds, cuttings, layers or suckers.

SEEDS.—This is a very interesting way of increasing Gooseberries, and the idea that they take years to fruit is a mistaken one. I had some young seedlings sown in February, 1917, which fruited well last season (1919). Seeds should be taken from perfect fruits, and they are best if kept in sand until February. They may be sown in the open ground or in pots. If the seedlings are kept in pots for the first year they may fruit sooner.

CUTTINGS.—This is by far the best method of increasing the Gooseberry, and the cuttings root quickly and easily. If inserted during November 95 per cent. will root easily. Cuttings may be put in up to the end of March, but those put in later will not root so easily. The cuttings should be about ten inches in length, and all the buds should be removed except three or four at the top of each cutting. A

small trench should be taken out with a spade, and the cuttings should be inserted in this, six inches apart. The rows should be one foot apart, and the soil about the cuttings made quite firm. They will grow much faster if the soil between the rows is kept well hoed in the early Spring.

LAYERS.—This is not an advisable or profitable method of increasing. The tops of the branches should be pegged down in Summer, and they may be covered with a little fine soil. If the layers root well and quickly they may be detached the same season.

SUCKERS.—This method also is not advisable for increasing the Gooseberry. Suckers, when rooted, are very liable to push other suckers. A good cultivator will never allow suckers to make their appearance. If it is wished to increase from suckers they should be lifted carefully, with as many roots as possible, and they may be planted straight away in their permanent positions.

PLANTING.

The best time to plant Gooseberries is November. Planting may be carried on until the Spring, but the best period is from when the leaves fall until just before the New Year. The roots should be spread out evenly, and all broken ends should be cut smooth. A little manure may either be mixed with the soil when planting or forked in afterwards. In either case it should be kept a good distance from the roots. This is essential, as I find that Gooseberries whose roots are covered with manure grow very little in the course of a year. When the bushes are planted late in the year, a dry litter may be spread about the roots as a protection from frost.

Training.

Bushes.—A bush a year old, from a cutting, should usually have three shoots. If there are more than three they should be cut right off. The three shoots should be cut back to three buds of their base any time from November onwards until the Spring. In the following year two shoots to be encouraged from each of the three branches. Any laterals which may push from these branches must be shortened in the Summer and cut right back in the Autumn to form spurs. The leading branches should also be cut back at this time to about eight inches. The third year two shoots should be secured from each of the leading branches, making twelve leaders in all. This is sufficient shoots for a bush, and training now consists of proper pruning. The bushes must not be allowed to become too thick.

Cordons.—These are very useful for planting against a north wall, fence or building to obtain a succession of fruit until late in the Autumn. Small trees for this purpose should be one year old from a cutting, and should have a clear stem of six inches from the ground. If intended for a single cordon the strongest and straightest shoot should be retained, and it should be cut back to twelve inches of its base. Other shoots should be cut back to about one inch. The following year the leader will push several growths, and the best one of these should be retained, cutting the others off close. Any laterals which may push from the leader should be pinched to one or two leaves in the Summer, and cut close off in the Autumn or Winter, at which time the leader to be cut back to twelve inches of the season's growth.

Double cordons and gridiron-trained trees are trained in the same way, but when the young tree is cut back the first year two shoots are secured for

double cordons and three for gridiron-trained trees. Trees shaped in this way should have the two outside branches trained in a horizontal position for about six inches and then straight up.

STANDARDS.—Gooseberries are very often trained with round heads on long stems, and make handsome and useful trees. They should be trained from a cutting with clear, straight stems. The cutting should be trained upwards until the stem is four or five feet in height. All side-shoots must be rubbed off as soon as they make their appearance; this is essential to obtain a firm, straight stem. When the stem has attained the desired height, the top should be pinched off in the early Spring. All Standard Gooseberries must be very securely staked and tied. The Standard will push several shoots from the top, and three or four of the best should be retained. When they are three years old they should be well-formed young trees, bearing large, fine fruit.

It is quite unnecessary to graft the cuttings to form Standards. Some people are under the impression that it is essential to graft them, but this is not so. Very fine Standards can be made straight from the cutting.

THE LANCASHIRE SYSTEM.

This form of training is used mainly for the production of very large, fine fruit. A one-year-old bush with only three shoots is transplanted. If it is a pendulous variety the branches are raised with forked sticks, but in the case of an erect-growing variety the branches are brought down to a horizontal position with hooked sticks. The main branches are never pruned unless they get very long, when the tops may be pinched off. In the following Summer the three branches will produce a number

of side-shoots, nearly all of which should be cut back to one bud in the Autumn (one or two may be retained where there is room for them, and they should be cut back to about half their length in the Autumn). The third year the three leading branches should have two young shoots, which should be shortened to about eight inches in the Autumn. In the fourth year the two branches should have two young shoots each, which should again be shortened. All other shoots must be cut off close. The bush should now consist of twelve branches, spread out evenly, and about one foot from the ground. Every two or three years the roots may be uncovered and shortened, and then recovered with fresh soil.

Pruning.

Gooseberries are either pruned too much or not enough. Most growers cut off the young wood and get no fruit. The grower should use his own discretion in pruning the different varieties. Most *varieties require very little pruning*, but they should be well thinned out. All old wood should be removed, and any branches which overlap should be cut off. The branches should be equally distributed round the bushes so that they can get plenty of air and light. Bushes must never be overcrowded.

All forms of Cordons should have the laterals cut back to about two eyes. Standards require no pruning at all, but they *should* be well *thinned* out. Always leave young wood not overcrowded, and the bushes will fruit heavily.

The best time to prune Gooseberries is November and December, but in districts where birds are very bad on the buds they may be left until the Spring. Bullfinches are the worst depredators, but the common House Sparrow and the Hedge Sparrow

are both known to raid Gooseberry buds. If the bushes are syringed two or three times throughout the Winter with some offensive-smelling Insecticide the birds will not harm the buds.

General Management.

Protecting the Blossom.—The flowers of the Gooseberry are sensitive to frost, although sometimes they will stand a great deal, and receive no harm by it. It is best to protect the flowers, however, when the weather is severe at time of blossoming. A single thickness of tiffany spread over the bushes and along the top of Cordon trees will be sufficient. Old newspapers may also be used.

Thinning the Fruit.—The bushes which have their fruit thinned bear the best fruit the following year. The fruit is never wasted, as it can be used in its green state. The fruit should be picked from the lowest branches, as it is apt to get dirty by the rain splashing it.

Protecting the Fruit.—Birds are very fond of ripe Gooseberries, and a net is essential for their protection. Posts should be put up at intervals of four or five feet to hold up the net. A good plan is to put wire-netting all round the plantation. Fruit for hanging should never be close together, as dampness spreads rapidly. Very fine, large fruit for show purposes may be enclosed in muslin bags. In wet weather a waterproof cover should be used, as Gooseberries will not keep in wet weather.

Culture.

The best methods for obtaining good crops of Gooseberries is to keep propagating young plants, and do not over-prune. Always keep the plantation free from weeds, and give sufficient water in dry

weather. Also give a mulch of good stable or farm-yard manure in the early Summer. The bushes should be kept free from lichens and mosses, and all such pests.

Diseases and Enemies.

Gooseberries may become infested with a few diseases, but, as a rule, if the bushes are treated properly they are not subject to many.

Gooseberry Mildew.—This is a fungus which attacks the young leaves and shoots. It may be cured when the attack is a light one with sprayings of Bordeaux Mixture, but the very best thing to do with badly-affected bushes is to cut them out and burn them. The ground should then be dressed with a good sprinkling of lime and Kainit. If possible the new plantation should be made on a different piece of ground.

Gooseberry Fungus.—This is a parasite which attacks the young leaves and fruit. It appears in thick patches, and is orange-red in colour. All affected parts should be cut away and burned. This disease requires much the same treatment as "Mildew." The bushes may be dusted with sulphur.

Rust.—There is more than one kind of rust which attacks Gooseberries. This disease causes spots to appear on the leaves, which become withered and fall off. Fortunately, this is not a very common disease, but if it does attack the bushes, the best method to eradicate it is to burn the affected trees.

Enemies.

Although the Gooseberry is subject to few diseases, it has a number of enemies which often do great harm.

Aphides.—These may be found on the lower sides of the young leaves. The bushes should be given

one or two forcible syringings with Quassia. If the bushes are badly infested, and the leaves are curled up tight, it is as well to cut the affected parts off and burn them.

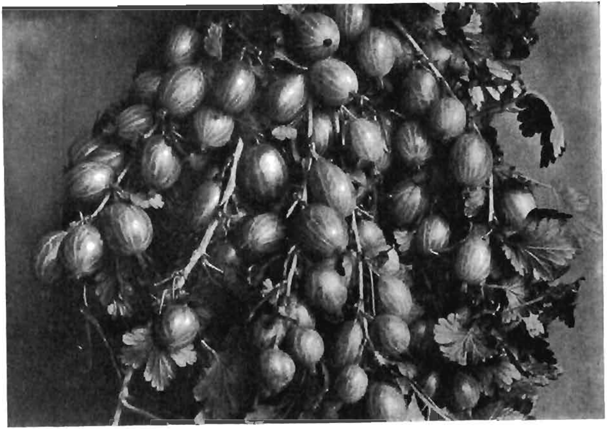
CATERPILLARS.—The caterpillars of the Magpie Moth, which are yellowish-white with black and orange markings, often do a great deal of damage. The caterpillar of the V-Moth, which is dull green in colour, marked with black and yellow spots, and is covered with black bristles, may also do harm. The caterpillars of the Gooseberry and Currant Sawfly are also very troublesome. They are bluish-green, marked with black. There are many other species of caterpillars which all do harm. All lay their eggs on the underside of the leaves, and as a preventive the bushes should not be pruned until all the leaves have fallen. The prunings and all the leaves should then be gathered up and burnt. A good dusting of slaked lime is the best thing for caterpillars. If the white appearance of the bushes is objected to, tobacco or hellebore powder may be used.

RED SPIDER.—This sometimes makes its appearance in dry weather, but it is not common on outdoor bushes or trees. Forcible syringings with clear water will remove light attacks, but the bushes may be syringed with Quassia or lime water. If they receive proper treatment Red Spider will not appear. They should receive plenty of water and liquid manure in dry weather, and they should be mulched.

SELECT VARIETIES OF GOOSEBERRY.

GREEN.

HEDGEHOG, OR GLENTON GREEN.—Fruit medium and round. Hairy. Rich of flavour. Bush, erect. August.



GOOSEBERRY. "WHITESMITH."
(This shows a bunch from a three-year-old seedling.)

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Keepsake.—Fruit large. Very prolific. End of August to beginning of September.

Red.

Crown Bob.—Fruit large and hairy. Very prolific. Bush, pendulous. September.

May Duke.—Fruit smooth and large. Heavy cropper. Ripe end of August.

Red Warrington.—Fruit medium, oblong, and hairy. Good cropper. Beginning of September.

Small Red Rough.—Small, round and hairy. Bush, spreading. End of August.

Red Champagne, or Ironmonger.—Fruit small and round. Skin thick and hairy. Bush, very erect. September.

Whinham's Industry.—Fruit large and hairy. Roundish-oval. Very prolific. End of August to beginning of September.

White.

Whitesmith.—Fruit large, roundish-oblong. Skin downy. Bush erect and good bearer. September.

Yellow.

Early Sulphur.—Fruit medium and hairy. Erect and prolific grower. End of July.

Golden Drop.—Fruit medium and round. Skin downy. Bush erect. End of July to beginning of August.

Golden Gem.—Fruit medium and rich of flavour. Erect grower. August.

Langley Beauty.—Fruit large and semi-transparent. Rich flavour. End of August to beginning of September.

Langley Gage.—Fruit medium. Transparent. August to September.

LANCASHIRE PRIZE VARIETIES.

Green.

Shiner.—Fruit round and medium. Bush, spreading. Bears freely. September.

Red.

Dan's Mistake.—Fruit medium and hairy. Bears freely. End of August.

White.

Careless.—Fruit long. Skin smooth and even.

King of Trumps.—Fruit medium and well formed. Of good flavour.

Yellow.

Broom Girl.—Fruit very large. Bush, medium. Good cropper.

Garibaldi.—Fruit large and hairy. An excellent bearer.

Leveller.—Fruit long and smooth. One of the best Yellows.

All the above are ripe from the end of August to the middle of September.

GRAPE VINES.

THE GRAPE VINE grows wild in Western Asia, Southern Europe, and North Africa. It is also found in Syria, Persia, Armenia, and Palestine. The Romans are believed to have introduced the Grape Vine into Britain.

OUTDOOR CULTURE.

Only in the South of Britain is it advisable to grow Grapes for wine-making, and in some parts there the soil is not suitable for the Vines. If Grapes are to be grown outdoors they must be well looked after. They will not grow themselves.

The vineyard must never be in the shade. It must receive every possible ray of light. It must be sheltered from cold, cutting winds, and hill or rock shelter is to be preferred to that of woods.

The soil must be gravelly or sandy, and it must be very well drained. The Vine does not care for deep loams. Manure should not be dug into the soil, but it may be used on the surface. The soil should never be too damp, as dampness tends to mildew.

Vines succeed very well on eastern or western aspects, but they do better on a southern aspect. In flat, low-lying districts they are often attacked with mildew.

PROPAGATION.

The Grape Vine may be increased by seeds, layers, cuttings and eyes. Inarching, budding and grafting are more suitable methods for changing undesirable

SEEDS.—The seeds should be taken from the berries when fully ripe, and they may be sown then or kept in sand until the Spring. They should be sown in pots in a fine, free, loamy soil. Seedlings do not fruit very early, but they may fruit in the second or third year if budded or grafted.

LAYERS.—Small branches or well-ripened canes should be layered before the buds begin to move. They should be pegged down and covered with about one inch of fine soil, which should be kept well moistened. The layers will root quickly, and should make strong growth in the following year.

CUTTINGS.—Cuttings of hardy Vines should be about twelve inches in length, and should be taken with a " heel." The buds should be cut out of that part which is to be inserted in the ground and the " heel " pared smooth. They should be inserted in a free, sandy soil while still dormant. In dry weather the cuttings should be kept well watered. Cuttings may be put in in their permanent positions from the first.

EYES.—This is the method most commonly practised in Britain. The eyes or buds should be taken from firm, well-ripened wood of the previous year's growth. The buds should be firm and round—NEVER long and flat. The cane should be cut through about half-an-inch both above and below the eye. A small, thin slice of wood should be taken off containing the bud. The eyes should be inserted in a special soil in February. The soil should be of a fibrous loam mixed with well-decayed leaf mould. To this should be added a little fine charcoal and a little crystal sand. The eye should be just level with the top of the soil, and it should be surrounded with sand. The soil should be kept moist, but too much water will make the eyes become blind.

INARCHING.—This should be done when the leaves are expanding, as there is very little danger of bleeding then. The Vine to be inarched is usually grown in a pot. A slice of wood is taken from the scion and the stock. A blunt tongue should be formed upwards in the stock and downwards in the scion, and the cut parts should fit exactly. The two shoots should be firmly bound together, and the stock shoot should be shortened just above the junction. When the union is perfect the scion may be cut halfway through on the outside, and a little later it may be cut right away.

BUDDING.—Budding may be performed when the stock is dormant, and also when it has just commenced growing. The buds should be retarded until needed. Cleft budding is the best method for thick stems. A diagonal cut should be made in the stock, cutting right through to the wood. The bud should be inserted in the cleft and bound firmly with raffia. The binding should not be left on too long, as it will cut the stem.

GRAFTING.—Grafting may also be done when the stocks are dormant, or when they have commenced to grow. Dormant grafting is best for stocks the same size as the scions. The scions should be taken from the Vines when the leaves have fallen, and should be laid in a north border until wanted. They must be dormant, but perfectly fresh when used. Whip or cleft grafting may be performed. The junction should be dressed with grafting wax.

Bottle grafting may be performed when the stock has commenced to grow. The scion should be of the previous year's growth with strong buds. A slice of wood should be taken off from three to four inches long, and also a piece off the stock. The cut parts should fit exactly, and the graft should be bound up

firmly. The scion should be long enough to be inserted in a well-filled bottle of water. When the graft has grown to about six feet, the top of the stock should be cut off, and the scion should be cut off just above the top of the bottle.

Arrangement and Planting.

Arrangement.—Vineyards are usually planted in lines which run north and south. A distance of three feet between the plants is quite sufficient, and the lines should be from three to four feet apart. Posts should be put up from four to five feet high, and the Vines should be secured to these.

Planting. — When cultivating outdoor Vines cuttings are usually set in their permanent positions. Canes which have been raised in other ways should be planted in the Autumn. A six-inch potful of bone meal for every cane should be mixed with the soil. When planted the canes should be cut back to two or three buds, but not more than three.

Training and Pruning.

Training: Chaintre System.—This is a French system of training. Long canes are grown, which, when fruiting, are supported on forked stakes. The bunches of fruit hang about six inches from the ground. This is a very good way to train Vines on borders or slopes.

Training: Castle Coch System.—By this system the main stem is not more than twelve inches in length. The growths, which come from the top, are secured to the stake. Every season they should be cut back to about two buds of their base.

Pruning: Chaintre System.—Long pruning is usually used for Vines trained in this way. When the fruit has been gathered the long rod is cut away.

Shoots soon push from the base, and a fresh young rod is trained in for the coming year. The lower part of the canes is often very weak, and to remedy this they should be cut back to half their length.

PRUNING: CASTLE COCH SYSTEM.—A number of growths push in the Spring, and only the strongest should be retained. All others should be rubbed off. From three to five is quite sufficient. The shoots should be stopped when they reach the top of the stakes. All secondary growths should be rubbed off as soon as they appear. The ground should always be kept free from weeds.

THINNING THE FRUIT.

Early thinning always secures the best results. Surplus bunches may be cut off before the flowers open, so that the fruit will be evenly distributed over each Vine. The bunches may be thinned when the fruit is about the size of peas. All small, weak berries should be cut out, also those in the centre of the bunch. Any long, loose shoulders of the bunches should be tied up. When the fruit is fully ripe the bunches should be even and compact in appearance—not long and loose.

GRAPE VINE DISEASES.

MILDEW.—This in appearance is like a grayish-white coating of powder on the leaves and shoots, and also the fruit. Mildew very often does great harm. Damp, low situations aid it, as does cold weather; but outdoors it is greatly checked by rain. Dryness at the roots of the Vines helps Mildew greatly. The usual remedy for it is sulphur. It should be well dusted over the Vines, but should be thoroughly washed off on the fourth or fifth day after applying. The Vines may also be syringed with bi-sulphide

of calcium. The evening is the best time to apply it, and the syringings may be continued at intervals of ten days, until just before the fruit is about to ripen.

ROOT-ROT. — The roots of Vines are often destroyed by different fungi, which in most cases causes them to die. There is no real remedy for this disease. Badly-infested Vines should be cut out and burned. Fresh soil should be put in the border. When forming borders and putting in fresh soil the greatest care should be taken to see that small branches of trees, pieces of wood, or beech mast are NOT put in. These harbour fungi greatly.

SPOT.—There are two forms of this disease. One appears in the form of grayish-white spots and the other in the form of brown spots. There is no remedy for this, but all affected fruits should be removed and burned at once. Great harm is done by this disease in some vineries.

SHANKING.—This causes the stalks of the berries to shrivel. Shanked Grapes are good for nothing, being very sour. Large bunches are often spoilt by this disease. Outdoor Vines are less liable to attacks than those inside. I myself consider that shanking is caused by gross mismanagement. A few of the causes are: Soil cold and wet, or far too rich; excessive feeding; extreme changes of temperature; over-cropping of fruit and over-crowding of the growths; attacks of Red Spider. All these causes should be avoided, and the danger of shanking will become much less. Affected berries should be cut out and burned. Three pounds of superphosphate of lime, mixed with half-a-pound of sulphate of iron, may be spread over the ground when the Vines come into leaf, and again after they are thinned. From four to five ounces per square yard is a sufficient amount to apply.

Grape Vine Insects.

Mealy Bug.—This is one of the worst pests the Grape Vine is subject to. It is a pale-red insect covered with a white, mealy bloom. It makes its appearance in the Spring when the Vines commence to grow. As soon as the fruit has been gathered all laterals should be removed, and the bearing wood should be shortened to a little above the pruning places. The Vines should then be syringed with a petroleum mixture. To twelve gallons of water add one gill petroleum, and syringe thoroughly with this. Before syringing, the ground should be covered with anything available at the moment to keep the petroleum from the roots. Four or five syringings should be given at intervals of a week. The syringing is always best done in the evening. The very best remedy for Mealy Bug is a mixture of clay-soap-sulphur. Five pounds of clay should be made into a thin paste. To this should be added one pound of soft soap and one pound of sulphur, and a small quantity of gas tar may be added to the whole. Care should be taken not to add too much tar, as it will destroy the eyes of the Vines. The mixture should be smeared over the canes in November or December when they are quite dormant. The roughest bark should be rubbed off, but not to skin the canes. The mixture should then be rubbed well into the canes. I have seen this remedy used many times, and it has proved the most effectual cure.

Vine Mite.—This very active little pest ruins the leaves of the Vines. The only remedy is to pick off all affected leaves and burn them. The top soil of the border may be removed and fresh soil put in.

Vine Louse.—This forms galls on the roots and leaves of the Vines, and very quickly destroys them.

The roots die, and so the Vines are starved. The best thing to do for this pest is to remove the Vines and all the soil. New borders or plantations should be made, and fresh Vines should be planted. The ground should never be allowed to get very dry.

CATERPILLARS.—Various caterpillars destroy the leaves and shoots of the Vines by feeding on them. They often fasten a number of ripe berries together with fine webs. The best remedy is to hand-pick the Vines all over. It is the most certain way of killing them. The Vines may be dressed with an Insecticide in the Winter. All dead leaves and loose bark should be removed.

SCALE.—This pest lives chiefly on the stems of the Vines. They should be dressed in the Winter with a good potash solution, made by steeping a quantity of wood ashes in double the quantity of rain-water. The solution should be poured off and applied to the Vines.

RED SPIDER.—To prevent this troublesome pest appearing, the Vines must not lack water or nourishment. Forcible syringings with clear rain-water will keep it down, but the Vines must not be syringed when the fruit is ripening. Syringing with soap-suds is very effectual, but they must be thoroughly washed off the next day.

THRIPS.—The best remedy for this pest, for outdoor Vines, is washing the leaves with a soft-soap solution. Two ounces of soft soap to a gallon of water will make a good solution.

WIREWORMS.—These often prove injurious to the roots of Vines, especially those planted in turfy borders. Pieces of raw potato or carrot buried in the borders make excellent traps. They should be attended to regularly.

WEEVILS.—These often do great harm to the leaves

and roots of the Vines. The top soil should be removed, and the Weevil larvæ are removed with it. Fresh soil should be supplied in its place. No rubbish should be left about, as they hide in this by day, and all holes in walls should be filled up. About the end of April the larvæ become wingless beetles, and this should be taken advantage of. Salt should be avoided, but a little lime may be forked into the ground.

SELECT VARIETIES.

Very few varieties do well outdoors.

BLACK CLUSTER.—The best for outdoor culture. Bunches small. Fruit juicy and sweet. Blue-black. October.

BLACK HAMBURGH. — Fruit large and oval. Bunches medium. Black. End of September to October.

FOSTER'S SEEDLING.—Bunches large. Fruit oval, sweet and juicy. Amber. September.

BLACKBERRIES AND LOGAN-BERRIES.

THE BLACKBERRY is the popular hedge-berry of the countryside, growing very abundantly in most parts of Britain. It is very productive, and the fruit is highly esteemed. It is used in a number of ways, wine also being made from it. As Blackberries grow wild they are very little cultivated, although the fruit of the cultivated Blackberry is much finer than that of the wild.

The Loganberry is a cross between the Blackberry and the Raspberry. The fruit, which is produced in clusters, is very large. The plants are very productive when treated properly.

BLACKBERRIES.

PROPAGATION.

Blackberries may be increased from seed, root-cuttings, half-ripe shoots, and suckers. These four methods are very undesirable and unprofitable. Layering is by far the best method.

LAYERS.—As soon as the points of the canes become leafless in the Autumn they may be layered. They should be pegged into the ground from three to four inches deep. In from four to six weeks they should have formed good bushy roots. They may then be detached and planted in their permanent positions.

SITUATION.

The Blackberry requires an open, sunny situation which is sheltered from cutting winds. Eastern

aspects suit the British varieties, but southern or western aspects are best for the American varieties. The Common Bramble thrives in almost any situation, but does not produce fruit in any situation.

Soil.

Cold, wet clay, dry sand, shallow or boggy soil will not grow Blackberries well. Deeply-worked soil is the best. Stagnant water is the greatest bane to Blackberry cultivation. The ground must be moist, but the moisture must drain freely away. If the soil is poor it should be well manured. A strong, deep soil produces the finest fruit.

Planting.

Autumn is the best time to plant. Small, young plants grow much better than large, old ones. The transplanting should be performed very carefully, so that the roots will not get broken or damaged in any way. The young plants should not be lifted and then left about some time before re-planting.

The ordinary Blackberries should be planted three feet apart in rows six feet asunder. Strong-growing varieties may be another foot wider apart each way. Trailing varieties should be planted five feet apart in rows nine feet asunder. For walls over ten feet in height the Parsley-leaved Blackberry only is suitable. The plants should be five feet apart. The same should be used for espalier arches at the same distance apart.

Trellises.

Staking each plant separately is not advisable. The best support for Blackberries is straight lines of wire. Posts should be put up about eight feet apart, and four rows of good wire should be attached to these. It is better to bore holes in the posts and

pass the wire through them than to fix it on to the posts with staples. I myself do not think it advisable to use wooden trellises.

TRAINING.

The plants should be cut level with the ground at planting. In June two or three of the strongest shoots should be retained and the others cut away. The canes should be shortened to four feet in the Autumn, but only if they make good progress the first year. If they do not, they should be cut back to the ground again. In the second year after planting, thin out the canes to three or four on each plant. The tops of these should be pinched off when they are about five feet long. Any laterals should be pinched at the third joint. When the fruit has been gathered, the fruiting canes should be cut out level with the ground. This leaves strong young shoots for fruiting the following year. The tops of the canes and laterals should be shortened as before.

The training for subsequent years is a repetition of above. Never more than five canes should be left on each stool or plant. Plants on walls or acres are trained in the same way.

BUSHES.—In the Autumn or early Spring the canes should be cut off level with the ground. The young growths should be allowed to extend the first year, but all should be cut to the ground in the Autumn. The clumps may be mulched over. Three or four of the strongest canes should be selected the following year, and all others should be cut away. The tops of the canes should be pinched when two to three feet high, and the laterals should be pinched to about twelve inches of the main stem. The canes should be cut off level with the ground after fruiting. Young shoots should be trained in for fruiting the following year.

MANURING.

The Blackberry, as well as other fruit trees and plants, likes good fare. Well-decayed farmyard or stable manure should be spread over the ground in the Autumn. It should be left on the surface for some weeks, and it may be lightly forked in afterwards. Three parts bone meal, and one and a half parts Kainit, mixed, may be applied in the Autumn. Three pounds of the mixture per rod is sufficient. If the canes are weakly in growth, one pound of nitrate of soda per rod may be applied in June.

The contents of cesspools and manure tanks are very beneficial to the plants in Summer and Winter. Plants growing on walls or fences should be watered once a week in dry weather. The plants should be mulched just before flowering. Mulching preserves the moisture and prevents the ground cracking. Weeds should always be kept under.

Blackberry plantations last for a long time, but they are much better renewed every four or five years. New plantations should be made before cutting out the old ones.

ENEMIES.

Blackberries have very few enemies. Birds are the worst. Blackbirds and Thrushes must be kept out by a net. In large plantations a gun should be used. Blackberries are very seldom attacked with blight or disease.

SPECIES AND VARIETIES.

There are a number of species of Blackberries, but mostly all have originated from the Common Bramble. The Cut-leaved Bramble, the North American Blackberry, the Blue Bramble or Dew-

Parsley-leaved.—Fruit large and well flavoured. Useful as an ornamental plant.

Wilson Junior.—An American variety. Fruit large. Free bearer.

King's Acre Berry.—Like the Loganberry, this is a cross between the Raspberry and the Blackberry. A very fine fruit.

LOGANBERRIES.

The Loganberry is a cross between the Raspberry and the Blackberry. The fruit is produced in clusters, and is very large. As it is ripe about the same time as the Raspberry it is not in great demand. Loganberries require a great deal of attention.

Propagation.

Loganberries can only be increased from layers. The points of the young shoots should be layered in July. They should be pegged down, covered with a little fine soil, and kept moist, but not too wet. The layers root very quickly. When nicely rooted they may be planted in their permanent positions.

General Cultivation.

Soil.—Loganberries do well in a good stiff soil. A stiff, damp clay is the best soil for them. They do not like a dry, crumbly soil. The soil should be damp, but not too wet. When there is an excess of water it should drain freely away.

Situation.—A southern aspect is to be preferred to all others for Loganberries. They usually grow quite well if the aspect is eastern or western. On the whole they do not thrive in a northern situation, but a continuation of fruit may be obtained by planting a few canes on a north border. Loganberries grow best in open, sunny situations, and this should be remembered when planting.

PLANTING.—Autumn is the best time to plant Loganberries. Young plants are always better than old ones. The canes should be planted very carefully. They should be planted five feet apart in rows nine feet asunder.

TRAINING.—Loganberries are best trained in single lines. Posts should be put up about eight feet apart, and four lines of strong wire should be attached to them. Single posts may be put up, and three or four canes may be tied to each. They may also be trained over arches, but in any case the treatment is the same.

The canes should be cut back to the ground when planted. Not more than four of the strongest shoots that push should be retained, and all others should be cut away in June. The canes should never be allowed to get too thick. In the second year the tops of the canes should be pinched when between five and six feet long. All laterals should be pinched at the third joint. The fruiting canes should be cut off level with the ground after fruiting.

MANURING.—Well-decayed stable or farmyard manure may be spread over the ground in the Autumn. Bone meal or Kainit, or both mixed, may be given in the Autumn. If applied separately, one pound per rod is sufficient; if mixed, three pounds per rod. If the plants are very weakly, one pound of nitrate of soda per rod may be given in June. The plants may receive the drainings of stables and cow-byres, diluted with water.

The plants should be given a good soaking of water in hot, dry weather twice a week.

ENEMIES.

The Loganberry's worst enemies are birds, and these can usually be kept at bay with a net. A small-

meshed net should be used, as small birds often get in. A gun is very useful on large plantations.

VARIETIES.

There is only one variety of Loganberry.

THE LOGANBERRY.—Fruit large, of a deep red colour. Used for dessert and culinary purposes.

MEDLARS.

THE MEDLAR is found in a semi-wild state in some parts of Southern England. It is also found in many parts of Europe and Asia. The flowers are large and white, and the fruit is produced on the points of the shoots. Medlars are generally eaten in a raw state.

PROPAGATION.

Seeds should be sown as soon as the fruit is ripe. They do not usually vegetate until the second year. To secure straight stems the seedlings may be staked, and when large enough they may be grafted. Very few seedlings come true, however.

Budding and grafting are the general methods of increasing. Medlars grow very well on thorns, but the pear stock is the best for Standards, and the Quince is best for moist situations.

Grafting is best performed in April with scions of the previous year's growth. The tops of the scions should be cut off.

SOIL AND SITUATION.

A good moist loam, free from stagnant water, suits the Medlar. Light, shallow soils should be well-mulched instead of mixing a large quantity of manure with them.

An open situation is essential. The Medlar will not produce fruit when crowded or shadowed by other trees. There is no difficulty in getting fine fruit if sheltered from cutting winds.

Planting and General Management.

Young Medlars should be planted about six feet apart and thinned out as they grow larger. Pyramids should be planted from six to nine feet apart. Planting is best performed in the Autumn, directly the leaves have fallen. They may be planted in the early Spring.

All young trees should be securely staked. After the framework of the tree is formed it requires little pruning. The weak growths should be thinned out and the branches prevented from crossing each other. Top-dressing with turfy loam and manure helps weak trees very much, also those in poor soils.

Gathering and Storing the Fruit.

The fruit should not be gathered until November. Gather when dry, and spread singly, eye-downwards, on a cool shelf. As a preventive of mouldiness, the stalks may be dipped in brine before storing. The process of bletting or mellowing requires a fortnight, but some fruits keep good for several weeks.

Varieties.

Dutch, or Monstrous.—Tree spreading and free-bearing. Fruit very large.

Nottingham.—Fruit small. Tree upright and a profuse bearer.

Royal.—Tree a good bearer. Fruit medium-sized; very good.

Stoneless.—Destitute of seeds or woody core. Eye small. Free bearer. Much less hardy than the other varieties.

MULBERRIES.

THE BLACK MULBERRY is the only species worthy of cultivation in this country. It is said to be a native of Persia, and to have been introduced by the Greeks. It is a hardy, deciduous, milky-juiced tree, belonging to the same order as the Fig and Stinging Nettle. It reaches a height of from twenty to thirty feet. The flowers, which are greenish-white in colour, are not conspicuous, and are borne in catkin-like spikes. The fruit is oblong, and composed of many egg-shaped grains. It is one inch or more in length, and red in colour, changing to a blackish-purple, juicy and sugary with a slight acidity. The fruit is ripe from August to October. The foliage is very dense owing to the size of the leaves and the short-jointed wood.

The White Mulberry is grown only for its leaves, which are used for feeding silkworms.

PROPAGATION.

The Mulberry may be increased by seeds, cuttings, layers, budding and grafting.

SEEDS.—Seeds should be taken from the choicest ripe fruits, dried, and kept in a cool place. They may be sown outdoors in May. Seedlings are long before they bear fruit, and are often unfruitful. They are really only useful as stocks.

CUTTINGS.—Cuttings should be about one foot in length, taken from the upper branches with a portion of two-year-old wood at their base. They should be inserted in a shady border, leaving only two eyes above ground, early in Spring or Autumn. Bearing

branches root readily. The laterals should be shortened a little, and the branch kept upright by staking. Give water when needed, and remove the lower side-growths when the branch is well rooted. A few each year is sufficient to form a clean stem of the height required.

LAYERS.—Layers should be made from the young branches in Autumn or Spring. The branch selected as a layer should be bent over and cut half-through at the bend, and then pegged down into the soil, which should be kept moist. All buds not wanted to grow should be removed. Autumn is always the best time for layering, and by the following Autumn they should be well-rooted, and may then be detached.

BUDDING.—This may be practised in July or August on seedling stocks in the usual manner.

GRAFTING.—Grafts seldom take well, because the stocks bleed too much when cut in Spring. A slight protection should be afforded the seedlings and cuttings in Winter.

SITUATION.

In sheltered and unelevated positions the Mulberry flourishes as a Standard in the South and Midlands as far as York. In the North of England and in Scotland it requires a warm aspect or a south wall.

SOIL AND PLANTING.

The Mulberry succeeds in any good loam, but it prefers a rather light, deep, moist soil. Pyramids may be planted in gardens, and trees may be trained to walls, keeping the main branches one foot apart. Planting is best performed in early Spring. Sunlight is essential for fruitfulness, and the growths must not on any account be crowded. The coarser shoots should be stopped to form spurs for bearing.

Pyramids should be planted from four to six feet apart, and trees against walls from six to nine feet apart.

Gathering the Fruit.

The proper time to gather Mulberries is when about to drop, as they do when fully ripe. The best plan is to spread cloths under the trees and let them drop, or shake the trees. Red berries are well enough for cooking, but for dessert they must be fully ripe, and they should be dished on their own leaves.

Enemies.

Birds devour the fruit long before it is ripe, and these should be netted out. Wasps, which make skeletons of the ripe fruit, can only be kept off by hexagon netting. Very few fungoid or insect pests attack the Mulberry. The branches are apt to split from the weight of the foliage and fruit, and needful support should be given. Many old trees have chains around the branches, and fruit enormously.

Varieties.

Black, or Common Mulberry.—Fruit large. Very slow growing. A small Standard may be twenty years old or more.

Weeping Mulberry.—Leaves shiny and pendulous. Fruit very small.

NUTS.

A Nut is a one-celled fruit, and contains, as a rule, only one seed. This nucleus, or kernel, is protected by a leathery, hard, or woody covering. Cultivation of nuts in Britain is confined to Cob Nuts, Filberts and Walnuts, although the Almond, which flowers so beautifully in early Spring, sometimes in a favoured season rewards us with a crop that will prove of use in the kitchen.

COB NUTS AND FILBERTS.

The common Hazel is found in parts of Europe, North Africa, and temperate Asia. It is found wild in every part of Britain. The Filbert is said to be a native of Asia, introduced into Italy by the Romans. The Cob Nut is round, and the Filbert long, but both are considered to be varieties of the common Hazel. The name Filbert really means "full-beard," as the husk is longer than the nut; but the husk of the Cob Nut is shorter than the nut itself.

Situation and Soil.

Both Cob Nuts and Filberts succeed in a high, well-drained situation, exposed to the light and air. Hill-sides, knolls and banks are also very good places for them. In low ground Spring frosts are apt to destroy the crops. Both varieties like a good friable loam. They also succeed in shallow loams on brashy marl, or on stony ground. Deep and damp soils are not good for the trees.

PROPAGATION.

Nut trees are increased by seeds, layers and grafts.

SEEDS.—These should be gathered when quite ripe, and if the weather is favourable they may be sown at once, or they may be stored in sand until February or March of the next year. They should be placed in rows in the open ground and covered with two inches of soil. In the Autumn of the second year the seedlings may be transplanted to one foot apart in rows two feet asunder. The fourth year they may be planted from five to six feet apart for fruiting. Seedlings are not to be relied upon, but they should be grafted on a good variety.

LAYERS. — Two-year-old growths pegged down firmly in the Autumn and covered with from two to three inches of soil, should be well rooted the following Autumn. They should then be planted eighteen inches apart in rows three feet asunder. They should be trained with clear stems to from one to two feet high, and then be planted out where they are to remain when they have formed a good head.

GRAFTS.—Grafting should be performed at the end of February or the beginning of March. Moderate growing, fruitful varieties grafted on vigorous-growing stocks produce very large and fine fruit. Whip-grafting is the best method to practise.

SUCKERS.—Suckers of two to three feet in height, if taken with good roots, may be planted in their fruiting quarters at once. If small suckers are taken in Autumn they should not be more than twelve inches in height. They should be planted one foot apart in rows three feet asunder. In from two to three years' time they may be planted out permanently for fruiting.

Training and Pruning.

Training.—Suckers which were planted in rows should be kept free of small suckers. Only the strongest shoot from each should be trained upright; the others must be removed. Suckers which were planted in their permanent positions should be cut back to eighteen inches of the ground. If the plants are weakly they should be allowed to grow for one year and then be cut back. A clean, sturdy stem eighteen inches in height should be formed, with a number of strong growths at the upper part to form the head. If six strong shoots push in the Spring after the head is formed, they should be trained outwards at equal distances. Each shoot should be shortened to a bud about four inches of its base in the Autumn. All jagged ends should be made smooth when planting, and all suckers removed. Nut trees should be kept open in the centre to allow a large amount of light and air to reach the smaller branches.

Pruning. — The leading growths must be shortened in Winter. One-third of the shoot is the usual amount to cut back, but more should be cut off weakly trees. The fruit is produced on the upper parts of the young shoots, and this should be remembered when pruning. The best and safest time to prune the trees is March or April. A number of growths are usually made in the Summer, and mostly all these should be rubbed off. A few of the strongest may be retained.

Every Winter the old wood should be removed, the spurs thinned, and the very strong growths kept down. After the Winter pruning the tree should have a sturdy, well-balanced amount of fruitful wood disposed of in a way to receive light and air freely.

When the larger branches become worn out they may be replaced by young branches. These should be as near to the base of the old branch as possible.

General Culture.

Suckers are a great hindrance to Nut production, and they should be pulled up as soon as they grow. The ground between the trees should have a Winter dressing of manure, which should be lightly forked in. Great care must be taken not to injure the roots. From two to three cwts. of manure per rod is a sufficient amount to apply. The hoe should be used in Summer to keep down weeds, and in hot, dry weather a few good soakings of liquid manure will be of great value. A mulching of littery stable manure is also very good in dry weather.

Gathering and Storing.

Cob Nuts and Filberts should not be gathered until they are quite ripe—when the husks and nuts are brown, and they easily separate. The nuts should be well dried, and they should not be taken out of the husks. When the nuts have been gathered, lay them in an airy or sunny place for a few days to dry. Then pack in tin boxes, and paste a piece of paper round the boxes when the lids have been put on to render them air-tight. Store in a cool, dry place. Nuts are always much better and sweeter flavoured when stored in the ground. An old sea-kale pot sunk in the ground is a very good thing to store them in. If the bottom is cemented over before putting the pot in the ground nothing will be able to get in. The nuts should be put in and sprinkled with a little salt or lime to keep them from getting mouldy. The lid should then be put

on and covered with soil. In this way I have known nuts to keep and retain their flavour for two years, and even longer.

Enemies.

Rats, Mice and Squirrels.—These take and store the nuts in large quantities. They may be stopped with the help of guns and traps. A good cat is very useful where a large quantity of nuts are grown.

Nut Weevil.—This insect has a beak nearly as long as its body. It is black in colour, and is covered with a fine down, which gives it a tawny look. The female Weevils appear on the nut trees in May, and deposit an egg in each young nut they visit. When the young grub hatches, it finds its food ready for it, and it feeds on the young nut (which is the cause of its dropping) until full grown. It then bores its way out, either before or after the nut has dropped to the ground. Clean culture all the year round is the best preventive. Dressing the ground with soot may be found useful—about forty bushels to the acre.

Nut Louse.—This is not generally very troublesome. Tobacco is the best remedy. The trees should be dusted with tobacco powder, or well syringed with tobacco water. This may be made by pouring three gallons of boiling water on one pound of strong tobacco. It should be applied in the evening, and the trees should be syringed with clean water the next morning.

Caterpillars.—The caterpillars of the Mottled Umber, Hop-dog, and Winter Moth, and others, often attack the leaves. These may be effectually destroyed with Paris Green. As this is a dangerous poison, it should be carefully locked up when out of use. One ounce of Paris Green paste to twenty

gallons of water is sufficient. The trees should be sprayed at intervals of three to four days.

Varieties.

COB NUTS.

Cosford.—Excellent flavour, and very thin shell. Very prolific.

Kentish Cob.—A good late variety. Nut large, broad and long.

Pearson's Prolific.—An early, prolific variety. Nut short and round.

FILBERTS.

Purple-leaved.—Leaves and fruit of a deep purple colour. Ornamental.

White Filbert.—A nut of excellent flavour.

Red-skinned.—The skin of the kernel is red in colour.

WALNUTS.

The Walnut is a native of Persia and Asia Minor. It was largely cultivated by the Greeks, who called it the Royal Nut. It is believed to have been introduced into Italy by the Romans, and from there it was carried into Britain and other parts of Europe.

Propagation.

Walnut trees are mostly raised from seed, and good varieties are perpetuated by budding and grafting. Trees raised from seed are the tallest and best for timber, but the worst for fruit production in this country.

Seed.—The best nuts only should be selected for raising trees, and they should be kept in sand until February or March. They should then be sown six inches apart and about three deep in drills about

eighteen inches apart. The ground must be kept free from weeds in Summer. When the leaves have fallen in the Autumn, take the young seedlings up, shorten the tap-root, and replant eighteen inches apart in rows two and a half feet asunder. If the young trees make good progress they should be transplanted again the following Autumn. After this the trees should be transplanted every second year until they are planted in their permanent positions.

BUDDING.—This is best performed on shoots of the preceding year where the wood is perfectly round. The annular system is the best for budding Walnuts. The best time to bud is September.

GRAFTING.—This should be done when the sap is flowing freely. The scions should be taken of about six weeks before grafting, and laid in a damp, north border. Saddle-grafting is the best when the stock and scion are the same size. Whip or cleft-grafting is to be preferred when the stock is larger than the scion.

SITUATION AND SOIL.

The Walnut does not succeed in cold, elevated or exposed situations. Any sunny situation which is sheltered from cold winds it will grow in. As far North as Edinburgh the Walnut is quite hardy.

Deep, sandy loams are best for the Walnut. Hot, dry sands and gravels are worthless. Heavy, wet soils are most unsuitable. Limestone or chalk covered with a thin loam will not grow Walnuts.

PLANTING, PRUNING AND TRAINING.

Most Walnut trees have large, spreading heads. Single trees, if they are to be planted at once in their permanent positions, should be planted from forty to sixty feet apart. The ground should be trenched

two feet deep, and if the soil is poor or bad it should be removed and good loam provided. In October, when the leaves have fallen, and Spring, before the leaves open, are the best times to plant.

As Walnut trees naturally form good, finely-shaped heads, very little pruning or training is required. Standards should have stems from six to eight feet high before the head is allowed to form. All dead or injured parts should be removed, as should any branches which cross each other. Autumn is the best time to prune Walnut trees—a little before the leaves fall.

Pyramids are very easily formed, but they need more attention. For these to produce fruit, seedlings are very unreliable. They should be carefully lifted every second year.

The male and female blossoms are separate on the same tree. The nuts are produced mostly in clusters. Care should be taken when pruning not to cut off one flower and leave the other, as a good crop of Walnuts depends on the presence of both male and female blossoms.

Walnut trees need very little attention until they get very old Top-dressing is very beneficial to the trees. Wood ashes mixed with a little soot makes a good top-dressing. About half-a-bushel per rod is a sufficient amount. It should be applied in Spring and be left for the rains to wash in.

Gathering and Storing.

Walnuts are generally ripe from the end of September to the middle of October, but June is the proper time to gather green Walnuts for pickling. When the nuts are ripe it is usual to beat the trees with poles. The nuts should part quite easily from the husks. They should be laid for a few days i-

a cool, airy place to dry. When perfectly dry they may be packed in layers of sand in casks or jars; a little salt put over them saves them from mould, but the flavour is best preserved in the ground. If the kernels shrivel the nuts should be steeped in milk or water for twenty-four hours.

Diseases and Enemies.

Canker.—In cold localities Canker is sometimes troublesome. It attacks the trunks and main branches of the trees. The Walnut tree is not subject to Canker, and in most nut plantations it is very rare. As much as possible all affected parts should be cut away.

Caterpillars.—Caterpillars prey on the leaves, but are really of little consequence, as they do not hurt this tree nearly so much as they do others.

Rats, Mice and Squirrels.—These also destroy the nuts in large quantities. Poison or traps may be put around the trees, and a cat is very useful where there are a large number of nut trees.

Birds.—Rooks and Jackdaws carry the nuts away, and for these a gun is best.

Varieties.

Common Walnut.—Fruit varies greatly on trees raised from seed. Usually well filled.

Precocious, or Dwarf Prolific.—Tree small; early bearing. Fruit of high quality.

Large Fruit.—Fruit very large. Does not keep

PEACHES AND NECTARINES.

THE PEACH is considered to be a native of China. It is extensively cultivated in the warmer parts of Europe and the temperate regions of Asia and America. The Nectarine is really a sport from the Peach. The fruit of the Peach is round, having a delicate, downy skin, with a seam issuing from the stem and proceeding along one side to the apex. The Nectarine has a smooth skin and a richer glow of colour than the Peach.

PROPAGATION.

The Peach and Nectarine require the same cultural treatment in every detail. Raising new varieties from seed is interesting, but very uncertain. Budding is far the best method of increasing. The ordinary shield budding is practised in July or August, taking care to select and employ wood buds only. Grafting is seldom practised, but may be successfully performed in the Spring. The scions must be short-jointed and thoroughly ripe, taking them before the buds commence swelling and retarding them until the sap in the stocks begins moving. Whip-grafting is the most desirable method, preparing the scion with about half-an-inch of two-year-old wood at its lower extremity, taking care that that part does not overlap the cut part of the stock.

STOCKS.—The Plum-stock is the most suitable, and the Black Damask with the St. Julien may be regarded as the best stocks generally for Peaches and Nectarines. Some, however, prefer the Mussel stock.

Wall Aspects.

North of 53 deg. North Latitude, Peaches and Nectarines require a wall with a due South aspect. The situation must be sheltered on the East, and round by the North to the West. This is absolutely essential. Low sites tend to late growth, rendering it liable to be damaged by frost in Winter and the blossoms to be destroyed in Spring. While elevation tends to harden the wood, the variations of temperature render the cultivation of this fruit precarious in the North.

South of 53 deg. North Latitude walls, facing due East or West, and not much exposed to winds or fogs, may have Peach and Nectarine trees planted against them with every prospect of success. Trees, however, on East aspects are liable to attacks of Mildew, and those against West walls have a tendency to late growth and moderate bearing. South-east aspects are better than East, and South-west far superior to West. South walls and efficient protection enable cultivators to produce fine fruit, in the southern parts of the country, up to 375 feet above sea-level.

Soil.

The Plum, on which most Peach and Nectarine trees are established, *is a surface-rooting tree.* Consequently the soil requires to be stored with abundant mineral elements—namely, potash, magnesia, lime, and phosphoric acid. Light soils are deficient in potash.

Almost any open, loamy soil can be made to produce Peaches and Nectarines. Properly prepared natural soil containing a good percentage of stones, grit and loam, to render it compact, is far better than the parings of an old pasture, deficient in mineral

ingredients. Light, dry soil should have clay marl mixed with it to make it firm. Stiff clay is too stubborn, cold and wet. Take off the top spit and lay it aside; burn the next spit so that it crumbles, and mix it with the first spit. This makes one of the very best soils for Peaches and Nectarines when properly mixed with the soil in the border.

Borders.

Without a wall with a favourable aspect, proper and sufficient depth of soil, and efficient drainage, Peaches and Nectarines cannot succeed in the open air generally. It is usual to provide borders as wide as the height of the wall, because such borders are useful for other crops, but it is a very bad policy to attempt to grow two crops and have neither good. Excavate the border to a depth of three feet, and place a three-inch tile drain near the outside edge, but six inches lower than the bottom of the border. Cover the drain with clean rubble. Place in nine inches of large rubble, and three inches of finer rubble on top. Peach borders are often made too rich and deep. If the loam is too sandy, add clay marl to it. Wood ashes and crushed bones are very good additions to Peach borders. Very rich soil must be avoided.

Distance of Trees.

This will be determined by the mode of training. Single Cordons to be trained diagonally may be planted two feet apart, and a border three feet wide will suffice for these trees. Moderate-growing varieties trained in the "U" system should be planted four feet apart, and the border need not exceed four feet in width. From ten to twelve feet apart is ample distance for Fan-trained trees.

Planting.

The trees selected should not be too vigorous, but clean, short-jointed, with well-ripened wood, and no trace of Gum. Spread out the roots, cut off any broken or bruised parts, and plant so that the uppermost roots will not be covered with more than two inches of soil. Plant very firmly, and give water if dry, but not otherwise. Cover the surface as far as the roots extend with stable litter. Secure the branches very loosely to the wall, and do not attempt to train them until the soil has settled. Spring is the best time to train. Autumn-planted trees should not be pruned until the buds at the extremities of the branches begin to unfold in the Spring. Spring-planted trees—those put in as soon after the middle of February as the weather will permit—will require a great deal of attention in mulching and watering the first season. Over-watering must be avoided, as it makes the soil cold and sodden.

Training.

Peach and Nectarine trees may be trained in many ways, but the most useful methods are: Cordon, "U"-shaped, and Fan.

Cordon.—This, which is a French method, is useful for covering a wall regularly, but quickly. If periodically lifted they remain fruitful for years. The trees must be planted aslant, two feet apart, at an angle of 45 deg. A maiden tree should consist of a single stem, grown from the bud the first season, with side-growths. These should be cut off closely, and the stem shortened eighteen inches above the junction of the scion with the stock when the buds are swelling in the Spring. In the Summer growths for bearing should be secured about one foot apart

on each side. The leader must be trained forward intact, and in the Spring of the second year it should be cut back to about three feet.

"U," OR TWO-BRANCH TRAINING.—To form the "U" tree, a maiden should be cut over at nine inches from the ground. This gives rise to side-growths. Select two of the best as nearly on a level as possible, and train these to the right and left of the stem with a curve upwards, and rub all others off. The shoots should be as nearly of equal vigour as possible. The following February cut back each shoot about one-third of its length and the laterals close to the main branches. Secure the main branches to the wall about two feet apart. Several shoots will spring from each branch. One should be trained upright as a leader, and three on each branch should be retained as bearing wood. Most of the other growths should be rubbed off, but a few may be left as spurs. Fruit is borne on the side-shoots of the previous year. As soon as the fruit is gathered the bearing shoots should be cut out and the young basal growths trained for bearing next year. On the uprights a shoot should be taken forward to continue it, also side-shoots at one foot apart.

FAN-TRAINING.—This is the old English method of training Peach and Nectarine trees. It is the most popular way in this country. A great consideration in fan-training is to see that the upper part of the tree does not become too vigorous and so weaken the lower part. The main branches should not be numerous, but regularly disposed and of equa strength. Bearing shoots should be trained between In the true Fan the tree has no central stem. Suc a tree is obtained by cutting out the leader an shortening the side-shoots of a so-called Fan. Th following Summer two shoots will extend from eac

branch, and these will form the foundation of the tree. In the Spring about one-third of their length should be removed from the six upper branches, but nothing from the lower ones. In the Summer two shoots should be taken forward from each of the two lowest branches, and one shoot from each of the four upper branches. On wood of the preceding year bearing shoots are taken along. These should be pinched to twelve inches. At the Winter pruning the laterals should be cut down to sound wood. The upper branches only require shortening to one-third their length. If properly trained the tree should bear fruit in the fourth year. Lifting the tree and bringing the roots to within six inches of the surface will prevent excessive growth, and will induce the tree to fruit freely. When the centre of the tree has been filled up very little training is necessary. The side-growths should not be allowed to get stronger than the main branches. The space between the side-growths should be thinly filled with bearing shoots.

Bearing.

Peaches and Nectarines are generally produced on one-year-old wood, but also on spurs. The growth differs, but both are produced from the same bud. Spurs are not desirable in trained trees.

Pruning.

Long-Pruning.—This may be applied to Cordon, "U," or Fan-trained trees. The shoots should not be weak, and yet not so vigorous as to push laterals. They should be short-jointed, brown, and hard. They may be cut back or left full length. The object in pruning is to modify vigour and maintain the health of the tree.

WINTER PRUNING.—This is best performed in February or March. Unfastening the branches from the wall and tying them in small bundles retards the opening of the blossom buds and increases the probability of a crop.

Wood buds are conical and pointed in shape, scaled, and contain a growing point.

Blossom buds are ovate, but become globose in swelling. They do not contain a growing point, therefore all pruning must be to a wood bud.

A bearing shoot is best furnished with blossom buds on twelve inches of the ripest and first-made wood. *As the extremity is no good for fruit production* it should be shortened to a growth bud.

SUMMER PRUNING.—All small shoots should be rubbed off after the fruit has set, but one may be left to attract the sap to the fruit, but it should be pinched at three leaves. Another may be retained at the base of the branch to make a sturdy bearing growth the following year. When the small Peaches commence to swell remove all small and ill-placed ones. When they are larger remove all but two of the best on the upper side of the branch. The bearing branch should be pinched at the top, when it will push laterals, and these also should be pinched. All other growths should be kept down, and when the fruit is gathered the bearing branch should be cut right out at the base. The young shoot can then be trained in, but when vigorous it must be stopped at fourteen inches from its base, other growths being stopped at the first joint. If properly pruned in Summer very little need be done in Winter. The chief thing to be remembered is never on any account to overcrowd the branches. Overcrowding is ruinous to the trees.

When pruning old trees it is desirable to remove

weak, bare and ill-placed branches, and train in new wood. Always allow sufficient space in the shreds for the swelling of the branches.

General Management.

Protecting the Blossoms.—Cold winds and frost very often spoil the flowers, young leaves and fruit. If kept dry, frost is not so injurious to the flowers. A single breadth of tiffany stretched across the trees, from three to six inches from the surface, will be of great use. Netting or sprays of evergreen are of more use against cutting winds. Projecting wall copings also afford valuable shelter to the blossoms. Woollen netting is the best for protecting them. Protection must begin with the appearance of the blossoms, and must be continued until the frost has gone.

With regard to protection there are three very common mistakes made. The first is using the covering in mild weather when the trees cannot be too much exposed. Secondly, not employing it in the evenings when frost seems likely, and, thirdly, taking it off before the frost has gone in the morning. These three mistakes must always be avoided.

Pyramid and bush trees should be protected by an awning of tiffany held up by stakes at the sides. The top must not be covered up, or the tree will get no air—and air is essential to its well-being. For Espaliers there is nothing better than straw mats fixed to a light wooden frame.

Disbudding.—The object in disbudding is to encourage the growth of the fruit and to make room for next year's crop. Overcrowding must be avoided by pinching all unruly growths. The wood and fruit must receive a large amount of light and air to ripen them. Disbudding should be performed gradually,

as if a large number of shoots are taken off at once it may prove injurious to the tree.

THINNING THE FRUIT.—Many more fruits usually set than it is wise to leave on the tree. Thinning should be done three times, so that the best fruits only are left. The first thinning should be performed when the fruit is about the size of horse-beans, the second when the size of marbles, and the third when the size of walnuts. The fruit should be left much thinner on the weaker parts of the tree than on the stronger. Over-cropping exhausts the trees very quickly.

WATERING.—Two things which should be attended to are—keeping the foliage clean and keeping the soil at the roots moist. Peach borders very often suffer from dryness. Sufficient water should be supplied to keep the soil moist. If the border has been allowed to remain dry throughout the Summer, it should be forked over or formed into small ridges. Water should be poured between the ridges continually until the border is soaked. If the trees are weak, liquid manure may afterwards be given, and then the soil should be levelled. The proper time to do this is before the trees come into blossom. It is a very bad practice to allow the borders to become dry at any season.

SYRINGING.—This is of great advantage to mostly all fruit trees. It is the best way of preventing attacks of Mildew and Red Spider. In bright weather, when the fruit has set, syringing should be occasionally practised in the early morning. In June the trees may be syringed between 4 and 5 p.m., but this should be discontinued when the fruit commences ripening. After the fruit has been gathered the trees should be properly washed to keep the foliage clean. A small engine is more convenient

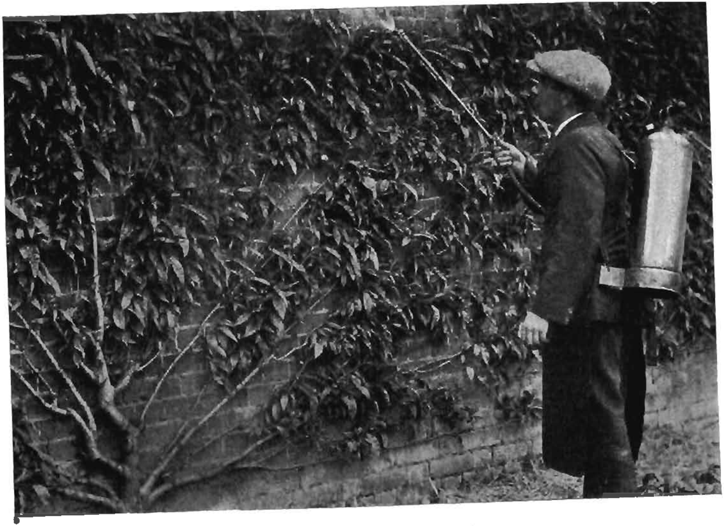
than a syringe when doing this. The border should be watched so that it will not become dry below and remain damp on the surface.

TOP-DRESSINGS.—These are of great benefit to all trees. A very good mixture for top-dressing is three parts of good loam from an old pasture, and one part of decayed manure. To every three bushels of this mixture add three handfuls of bone meal and six handfuls of wood ashes. This should be applied an inch in thickness when the leaves have fallen. All mulches should be removed. This dressing should be used annually.

MULCHING. — Partially-decayed stable manure applied to the borders in May or June as a light covering is very beneficial to the trees. It should be added to occasionally to keep it about two inches in thickness. Mulching encourages surface roots and checks evaporation. It is a bad practice to apply the mulching when the soil is cold. It should have been warmed by the early Summer sun first. Very thick coverings of manure must be avoided, as they induce fruitless growths.

MANURES AND FEEDING.

Peaches and Nectarines require potash and phosphoric acid in plenty, also magnesia more than lime, and a little iron. Potash may be supplied in wood ashes, one peck per rod being a sufficient amount. They should be applied in Autumn or early Spring. Nitrogen is indispensable to Peaches and Nectarines, and it may be conveyed to them in blood meal at the rate of half-a-pint per square yard. It should be applied when the buds commence to swell, and repeat it when the fruit has stoned. This is best, however, for weakly trees in light soils. For heavy soils the blood meal should be replaced by the same amount



SPRAYING WALL FRUIT.

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of bone meal, and it should be applied with the wood ashes not later than February. Liquid manures are of great value in helping the fruit to swell, and the drainings of stables, cow-houses and manure heaps may be used.

Gathering the Fruit.

The colour and quality of the fruit depends on its exposure to the sun. Any leaves that shade the fruit should be shortened or removed. When the fruit is ripening a net should be put up underneath the trees to catch any fruits that may happen to fall. The fruit is always best when gathered properly by hand. It should be taken in the hollow of the hand, and the thumb and fingers applied to the back near the stem, and it will soon be known if it is ready to be taken off. Peaches and Nectarines should always be very carefully handled, as at the slightest touch they go brown. The trees should be looked over at least once every day, but twice a day is not too often when there are a large number of trees to attend to. Fruit for packing should be slightly under-ripe, but not too much so. All fruit when gathered should be placed in a cool room.

Ailments.—Peach and Nectarine trees often suffer from affections which are not diseases.

Cankerous Affection of Stem and Large Branches.—This has nothing to do with Pear and Apple Canker. The bark becomes very hard, and then cracks, forming irregular patches which expose the wood. The cause may be sunburn, blows or hard frost, also bad soil and too much water, and in some cases too much iron in the soil. The defects of the soil must be remedied. The best preventive is to tie thin boards to the stem of the tree. They should reach from the top of the stem to the ground.

These are a very good protection from the weather, and they keep the bark from becoming tough through the sun's action. Old hay-bands twisted round and round the stem are also a good protection. In fact, anything will do so long as it affords the stem a little shade and keeps it cool.

Excrescences on Roots.—These usually appear on the roots of trees which are grown on gravelly soil. The roots form a number of wart-like knots, which often push suckers. The trees should be lifted and the worst parts cut out, and fresh soil should be put in the border. This is a very common ailment for outdoor trees to contract. Planting a crop on the Peach border and heavily manuring same, together with wounding the roots when digging, are the chief causes.

Root Fungus.—This is caused by using manure or leaf mould which contains woody matter. Drought helps the fungus greatly, and should be avoided. Soaking the border with lime water proves effectual in mild attacks, but in severe attacks the trees must be removed and fresh soil put into the border.

Sunburn.—This is very troublesome to trees against walls. The branches and trunk become very much dried, which prevents the flow of sap and also causes the branches to die off. Every effort should be made to prevent Sunburn. One of the very best plans is to tie thin pieces of board to the trunks of the trees. The boards keep the sun off and keep the trunk cool. Pieces of straw mat are useful for the main branches.

Buds Dropping.—Some varieties of Peach and Nectarine trees drop their buds, such as "Waterloo" and "Hale's Early." It has been said that dryness at the roots caused this. This should certainly be

deal to do with it. American varieties of Peaches and Nectarines are much more liable to this ailment than English varieties.

Diseases.

Blister.—This, which is chiefly confined to the leaves, is caused by a fungus. The part becomes misshapen and swollen and the leaf curls into peculiar forms. The best thing to do with affected trees is to go over them carefully and remove all leaves and shoots which are blistered. They should be looked over about every three days, and all affected parts should be at once burned. Blister is very common in cold Springs, and some protection should be afforded the trees. Spraying with precipitated carbonate of copper will help the trees. An ounce of carbonate of copper should be well mixed in a small quantity of water, and this should be added to twelve gallons of water. The trees should be sprayed with it before the buds open, again when the fruit has set, and once more about a month after the second time.

Gum.—This is a common disease which destroys many fruit trees. It is caused by a fungus. An attack is induced by very rich soil, and also by very poor soil, and by over-feeding, and the opposite extreme of not getting enough nourishment. The best preventive is a good medium soil. The tree may be lifted and the affected parts cut away, and if the soil is attended to and the tree protected from sudden changes in the weather, another attack is very unlikely.

Mildew.—More than one species of this disease attacks the young shoots, leaves and young fruits of fruit trees. The parts infested appear to have been dusted with a greyish-white powder. Mildew is very

seldom seen on well-syringed fruit trees. Cleanliness is essential to prevent Mildew, also careful culture. Sulphur is considered by most gardeners to be the best cure for Mildew. Half-an-ounce of sulphide of potassium to a gallon of water is a very good mixture to spray the trees with. A solution of eight ounces of soft soap, four ounces of flowers of sulphur, and five gallons of water, if applied soon enough, will secure the setting of the fruit of affected trees. The soil about the trees may be dressed with an iron solution. The fruit of trees which have been dusted with dry sulphur must be washed before sending to table or market.

YELLOWS.—The leaves of Peach and Nectarine trees which have the Yellows are yellow, not green in colour. When the trees are affected with the Yellows the wood does not ripen properly, and the shoots do not form perfect buds, and very often the whole tree dies. In the first stages of the disease an application of Guano in liquid form will help the tree greatly. A quarter of an ounce of sulphate of iron per square yard is another good thing to use, but this does not suit some soils. The best cure for Yellows is an abundance of fibrous roots working freely in a good firm soil containing a sufficient amount of potash and lime.

SPOT.—This disease causes a pale salmon-coloured patch on half-ripe fruit and renders it useless. Fruit in low, damp places are most liable to attack. All infested fruit should be burned to prevent the disease spreading. Spraying with a solution of half-an-ounce of sulphide of potassium to a gallon of water acts as a preventive. The trees should be sprayed first when the fruit is the size of walnuts, repeating two or three times at intervals of a fortnight.

Enemies.

Aphides.—Green Fly is very destructive to the young shoots and leaves of fruit trees. Its attacks are confined to the young growths only. Brown Fly lives on Peach trees all the year round. In Winter it clings to the young wood, and in Spring attacks the buds, young leaves and shoots, ruining them. Tobacco is the best remedy for Aphis of any description. Tobacco powder dusted over Aphides kills them very quickly, and it causes no smell. Tobacco water is a very effective spray. Three gallons of boiling water poured on one pound of strong tobacco is a sufficient amount to use. Apply in the evenings and wash off the next morning with clean water.

Caterpillars.—Peach and Nectarine trees are often infested with the caterpillars of different moths. They are much better removed by hand-picking. Mostly all caterpillars are destroyed by spraying with Paris Green. Any webbed-up leaves should be cut out and burned.

Brown Scale.—This insect prefers to prey on trees under glass, but it sometimes attacks those on walls. It clings very firmly to the young leaves. All leaves should be burned as they fall. When the trees are leafless, unnail them from the wall and syringe them with clean, warm water, and when they are dry wash them with a solution of soft soap. Four ounces to a gallon of water will be sufficient strength, and it should be applied with a small brush. The trees may be washed twice before securing to the wall again. Resin compound is a very good mixture in the first stages of an attack. To make this compound, dissolve half-a-pound of caustic soda in half-a-gallon of boiling water. Add four pounds of resin slowly and boil all together until

dissolved, and then add two and a half gallons of water. Strain while hot. One quart of the compound should be used to three gallons of water at a temperature of 100 deg.

RED SPIDER.—This is the greatest enemy the Peach has. The best way to prevent it is syringing. Red Spider is very seldom seen on trees which are properly syringed. The following wash may be used in or out doors when the fruit has been gathered: Dissolve seven pounds of soft soap in fifteen gallons of boiling water. Boil three-quarters of a pound of caustic soda and one and a half pounds of flowers of sulphur in one gallon of water until it is a dark mixture. Mix well with the soap solution, and boil for half-an-hour. Then add twenty-five gallons of water, and it is ready for use. It should be applied warm. A mixture made from Quassia Chips is also very good for Red Spider.

WEEVILS.—The young leaves of the Peach and Nectarine are often gnawed by Weevils. At the beginning of April the beetles have no wings, and this should be taken advantage of in catching them at night. All loose rubbish should be cleared away from the trees, and holes in walls should be filled up, as the beetles hide in all such places by day. The Red-legged Garden Weevil is the worst. A dressing of seven pounds of salt per rod kills many below the ground. It should be used sparingly in October.

THRIPS.—These pests seldom appear on well-syringed trees. Inside trees may be fumigated with tobacco. The following solution is a very effectual one to syringe the trees with. Dissolve eight ounces of soft soap in four gallons of boiling water. Pour four gallons of boiling water over one pound of tobacco, and strain when cool. Mix the two solutions together, and apply warm once a week. The trees

should be syringed with clean water the day after every application.

ANTS AND EARWIGS.—Ants are often very troublesome. Fresh Guano sprinkled about their nests drives them away, as does petroleum, the latter often killing them outright. A garden pot smeared with treacle and put over their nests attracts them very quickly, but in these hard times this may not be possible.

Earwigs are the cause of great destruction to some fruit trees. The best way to keep them away is to leave no rubbish about whatever. A boiled potato placed in a garden-pot attracts many. The baits should be examined every morning.

VARIETIES.

EARLY PEACHES.

ALEXANDER.—Fruit large and round. Tree hardy and a free bearer. Ripe in July.

WATERLOO.—Fruit large. Ripe middle of July. Tree hardy; free bearer. An excellent travelling variety.

SECOND-EARLY PEACHES.

HALE'S EARLY.—Fruit medium. Tree an abundant bearer. Ripe in early August.

RIVER'S EARLY YORK.—Fruit medium and round. Tree hardy and a good bearer. Ripe in early August.

EARLY MID-SEASON PEACHES.

CRIMSON GALANDE.—Fruit medium. Skin crimson, nearly black if exposed to sun. Tree free grower and abundant bearer. Ripe from middle to end of August.

MAIN MID-SEASON PEACHES.

round. Tree hardy and a good bearer. Early September.

BELLEGARDE.—Fruit round and large. Tree free bearer. Middle of September.

STIRLING CASTLE.—Fruit medium. Tree an abundant bearer. Early September.

ROYAL GEORGE.—Fruit large and round. Tree very free bearer. Ripe in early September.

NOBLESSE.—Fruit large. One of the best-flavoured varieties. Ripe in early September.

LATE PEACHES.

BARRINGTON.—Fruit large. Tree healthy and hardy. Ripe from middle to end of September.

PRINCESS OF WALES.—Fruit very large and round. Ripe middle of September. Tree good bearer.

SEA EAGLE.—Fruit very large. One of the best late Peaches. End of September.

GLADSTONE.—Fruit large. Tree a very good bearer. A good late variety. End of September.

GOLDEN EAGLE.—Fruit very large. Tree healthy and a good bearer. End of September to early October.

SALWEY.—Fruit large and round. Tree very productive. Middle of October to early November.

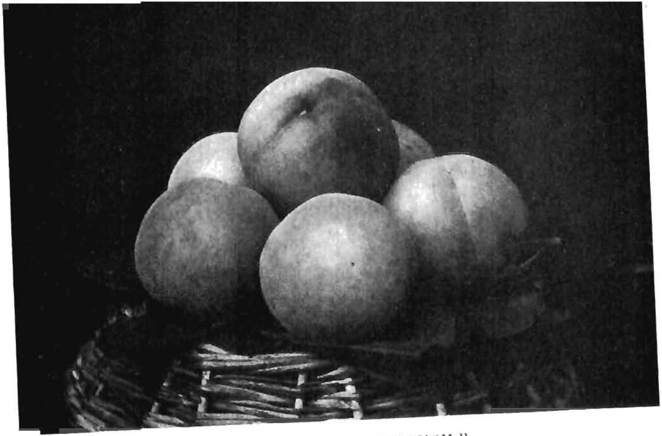
WALBURTON ADMIRABLE. — Fruit large. Tree hardy and a good bearer. End of September to early October.

EARLY NECTARINES.

LORD NAPIER.—Fruit large and richly flavoured. Tree free bearer. Early August.

SECOND-EARLY NECTARINES.

DARWIN.—Fruit medium. Middle to end of August. Tree good bearer.



PEACH, "LORD DESBOROUGH."

New Seedling. A.M. S.H.A., 1917.

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River's Orange.—Fruit large. Tree profuse bearer. Middle to end of August.

MID-SEASON NECTARINES.

Humboldt.—Fruit large. Tree abundant bearer. Beginning of September.

Dryden.—Fruit very large. Tree vigorous and profuse bearer. Early September.

Byron.—Fruit large. Tree vigorous and a free bearer. Middle of September.

Newton.—Fruit large and round. Tree vigorous, good bearer. Beginning to middle of September.

Pine Apple.—Fruit large and nearly oval. Tree healthy and a good bearer. Ripe early September.

LATE NECTARINES.

Milton.—Fruit very large. Tree a good bearer. Middle to end of September.

Spencer.—Fruit large. Tree healthy and a free bearer. End of September.

PEARS.

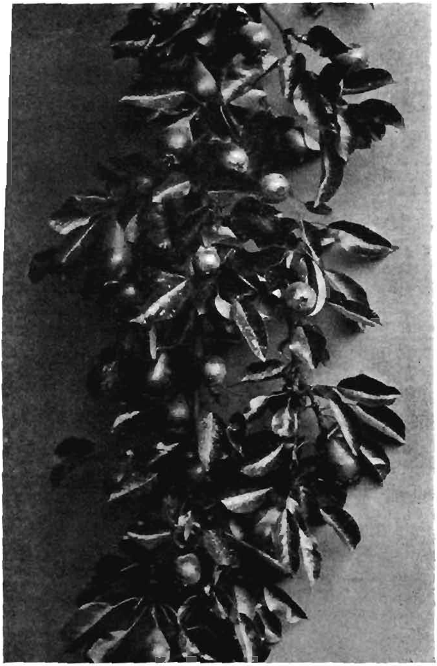
THE PEAR is found wild in some parts of England, but it is a native of temperate Europe and Western Asia, though it has been found in the Himalayas. It is believed to have been introduced into England by the Romans. Perry is made from Pears which are very hard and uneatable.

PROPAGATION.

The Pear is increased by seed, cuttings, layers, budding and grafting.

SEEDS.—Seeds are generally sown to raise new varieties, or to make stocks for budding or grafting named varieties on. The seeds may be sown in well-drained nine-inch pots filled with a good loamy soil. The pots should be covered with a piece of glass to keep away mice. If sown about October the seedlings will appear in the Spring, and may be planted out the following Autumn. They may fruit in the sixth or seventh year.

CUTTINGS.—Cuttings and layering are not desirable methods of increasing the Pear. Cuttings should always be of ripe, firm wood. The end of October is the best time for taking cuttings, when the leaves have fallen. Cuttings should be from ten to twelve inches in length. A hot, dry place is a very unsuitable position for cuttings, as is also a shady place surrounded with trees. A North or East border is a very good place, but they must not be planted close to a wall or fence, as they require a good deal of sun. An open, yet sheltered, situation



A BRANCH FROM A STANDARD TREE OF "PITMASTON DUCHESS" PEAR.

This is the prince of Dessert Pears. Fruit was only half *grown when photo. was taken.*

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is the most reliable. Water should be given if the weather prove dry.

Pear cuttings are very difficult and uncertain to strike, and because of this they should always be taken with a heel attached to them, or a piece of the branch from which they spring. All buds should be removed if not wanted to grow.

LAYERS.—The branches selected as layers should be cut half through and pegged into the ground. All buds must be removed from that part under the soil. The soil should be kept moist round about the layers. Autumn is the best time to perform layering, and by the next Autumn the layers should be well rooted.

BUDDING. — This is the most-used method of increasing mostly all stone fruits, as well as Pears and Apples. Buds should always be inserted on shoots of the same year's growth. July and August is the best time for budding, and it is best done in damp weather. Wood buds are essential for budding.

A bud is cut off the young shoot with the bark, about one and a half inches long. The wood is taken out of this piece, which is called a shield. A cut is made in the stock at the height required about an inch long, with a cross cut at the top. The bark should be gently raised, and the shield will then go in easily. The shield must fit the stock exactly. It must be bound round with something firm, but which will not cut it. Cotton wick or Raffia are very good. This must always be removed in time, generally within a month after budding.

GRAFTING.—This is the oldest method of increasing all fruit trees. The best time for the South is March and April, but the first fortnight in April is the earliest for the North. The stocks should be headed before the sap rises. They should never be

headed in frosty weather. The grafts should be inserted about six inches from the ground, but not higher than twelve inches. Quince stocks used for Pears should be grafted three inches from the ground. Healthy, vigorous stocks are essential, and whip-grafting is the most suitable method.

The scions should always be thoroughly ripened. Shoots of the preceding Summer are used, with plenty of wood buds. The scions should be cut in January if mild, and if not in February; never when frozen, but always before the buds commence to swell. They should be inserted two-thirds their length in a moist, shady border. It is essential that they be kept quite fresh.

Stocks.

The Quince stock is the best for Pears, but some varieties do not succeed on this. Apple and Pear stocks are divided into two classes—the first Free Stocks and the second Dwarf Stocks. The former are seedlings, which naturally grow to the size of the parent tree. The latter are of lesser growth.

The Pear takes on the Hawthorn, Rowan or Mountain Ash, Medlar, Quince, and Common Wild Pear. These two, though mentioned last, are not the least. The Quince is far the best stock for Pears, but the Common Wild Pear is better for Standards. It thrives in a damp position not too light, but it will never thrive without plenty of alkali. Pear stocks are raised from seed, either of the Wild Pear or of the Perry varieties, and they should be treated as Apple stocks.

Soil.

All loamy soils of a good depth will grow Pears, provided the sub-soils are free from stagnant water.

On the Pear stock the Pear will thrive where the Apple will not. The Pear pushes its roots into the soil to a greater depth than any other fruit tree, except the cherry. Pears are apt to "crack" in loam over clay. Moisture is all important, but so is thorough drainage.

Pears on the Quince stock require very good soil. Pears on this stock do not succeed in wet soils or in cold clays. The trees thrive in a well-drained soil which can be worked freely.

Situation.

The best fruit is undoubtedly produced on trees planted against walls facing South, but Pears thrive very well on walls facing East and West. Mostly all northern situations are too cold for the Pear. It is essential that the site be open, as all fruit trees require light and air, and sun is good for the ground as well as the trees. All sites for orchards should be as far away from large sheets of water as possible, and they should not be on a level with such.

Planting.

Always choose healthy, straight-stemmed trees well supplied with branches and roots. October and November is the best time to plant fruit trees, but they should not be moved from one position to another until the leaves have fallen. Favourable times for planting may generally be found from October to April. Trees should not be planted in March if the winds are cold and drying. Any broken or damaged roots should be pared smooth before planting. Care should be taken to spread out the branches when planting, so that they are not (or will not become) crowded. The soil should be well distributed among the roots. A little water may be

given to settle the soil, but in almost all cases watering is injurious. A little is necessary in very dry weather. Hard treading is very bad for the trees, and it should be avoided. The soil, however, should be put firmly about the trees. Pear trees must not be planted too deeply. The topmost layer of roots should be covered with about three inches of soil.

PLANTING AGAINST WALLS OR FENCES.—When planting trees against walls or fences the roots should be disposed of in a semi-circle. Very long downward roots should be shortened. The trees should not be less than six inches distant from the wall or fence, and not more than nine inches distant from same. The branches must be tied loosely, and on no account should they be nailed or trained to their proper position until the soil has set regularly.

DISTANCES.

Standard Pear trees should be planted from twelve to fourteen feet apart. Single Cordons should be eighteen inches apart, Gridiron-trained three feet, Fan-trained ten to twelve feet, and Espaliers from ten to twelve feet apart. Pyramids and bushes on the Quince stock should be planted from six to nine feet apart.

TRAINING.

The Pear can be, and is, trained in more forms than any other fruit tree.

LOW STANDARDS.—All Standard trees should be securely staked. This keeps the stem straight and prevents damage from storms and wind. In the second year the top of the tree should be pinched off, but only the top. Shoots will push from here, and these will form the head of the tree next year. These shoots may also be pinched when sufficiently advanced. Side-shoots will form, and may remain

on the stem, but in September they should be shortened to about four leaves. At the Winter pruning these must be cut off close to the stem. The head should be cut off above three good buds on each of three strong, but not too vigorous shoots. These three shoots should be as equal in strength as possible. Side-growths from the stem should be pinched again in June, and cut clear away at the following Winter pruning. In the fourth year two strong shoots should be carried on from each shortened branch, and all others rubbed off. These should be stopped at six inches at the next Winter pruning. Any laterals that may push from the shoots must be pinched at the first leaf. In the fifth year of training two shoots should be encouraged sideways from each young branch.

The young maiden tree should be about four feet high before attempting to form a head. When pruning in Winter after the fifth year, care should be taken to see that the branches are thinly, but evenly disposed of.

PYRAMIDS.—Many varieties naturally grow in the Pyramid form, but Pears on the Pear stock grow the largest. Pyramids occupy less space than any other form.

The young tree or maiden should be about three feet in height. It should be securely staked and cut back to about half its length. Four strong shoots should be encouraged on each side of the stem. After one year's training the young tree should consist of eight strong side-shoots and a good leader. These side-shoots and the leader must be shortened to about one-third their length. The beginning of Spring is the most suitable time to shorten the shoots. Lifting and replanting the tree would be very beneficial to it at this stage, but great care must be taken of the

roots. A tree with damaged or broken roots will never thrive properly.

In the following years two or three shoots may be encouraged on each side of the stem. Two are generally sufficient, the shoots and leader being cut back to one-third the length of the preceding year's growth. In the third year of training the tree should have a good foundation, and most probably the two-year-old wood will bear blossom buds. If the interior growths are closer than nine inches they should be thinned out and shortened. From now onwards the lower side branches need to be shortened, as from their position they will not grow so vigorously.

When training a large number of Pyramids, care should be taken that they are not planted too closely. Trees which have been planted too close together usually have very few shoots on one side and too many on the other. Care should also be taken to see that the young tree is cut back low enough from the beginning, otherwise the tree will have no side-shoots at its base, and will thus spoil the symmetry of the tree itself and the border in which it is planted.

BUSHES.—Bush Pears on the Quince stock are very useful as well as ornamental. They produce fruit freely.

After the seedling has been budded or grafted, growths sometimes make their appearance on the stock. These must be rubbed off, and laterals from *the young tree pinched at the first leaf.* In the second Autumn or Spring after budding, the maiden tree should be cut back to about six inches of the stock. Two shoots on each side of the stem should be encouraged, so that in the following year the tree should consist of four strong side-shoots and a leader. If laterals push from these growths they should be pinched at the first leaf. At the Winter pruning the

leader should be left from twelve to fifteen inches long, and the tops should be cut off the side-shoots.

From now onwards two shoots should be encouraged on each side of the stem every year until the bush is the height required. The tree will be benefited greatly if transplanted regularly for the first four years of its life. If the tree is transplanted in the Autumn, shorten the branches a little in the Spring. If planted in the Spring, shorten them at once.

GOBLET BUSHES.—The maiden to be trained in this form should be cut back to within a foot of the ground in Winter. The following Spring three shoots should be chosen from those that push to form the bush. All others must be rubbed off, and the three chosen must be as near as possible on the same level. The shoots should be strong, but not too vigorous, and they should be trained outwards at an angle of 45 degrees. In the Autumn each shoot should be cut back to three or four sound buds. Two shoots will push from each branch the following Spring. These six shoots should be trained in a circle more or less round the stem of the bush, and all other growths should be cut off. The shoots may be disposed of regularly round a wooden hoop from two to two and a half feet in diameter. This should be put on in the Summer. Hoops help to keep the trees in shape and support them in windy weather. In the Autumn of the second year the shoots should be cut back to one-third their length. The shoots should now be trained upright, and another hoop may be put on in the following Summer.

In the following years the treatment is almost the same. When the tree has attained the required height the shoots should be closely pinched. If a larger "Goblet" is required, shorten each of the

six shoots to six inches and train two shoots from the end of each the following year. Larger hoops must be used for larger trees.

Columnar Trees.—The Columnar, like the Bush, has no central stem. A number of branches originate by cutting back the maiden to four buds of its base. Of the shoots that push from here, three or four may be retained. Three are generally sufficient, as four or more are apt to make the tree too thick. The following Autumn these shoots should be cut back to about six inches. The next Spring three strong shoots should be encouraged on each of the three pruned branches. These should be cut back in the next Autumn to one-third their length. All side-growths and laterals should be rubbed off. If more shoots are wished for, one only should be encouraged the following year on each of the six branches. I myself think six good strong branches are sufficient.

All irregular growths should be cut away, and mostly all laterals should be rubbed off. A few must be retained to form branches, and these should be regularly disposed from twelve to eighteen inches apart. Blossom buds will not make their appearance if the branches are crowded. The tree should be thinned out regularly.

Fan-shaped Trees.—This is one of the best forms in which to train Pears for walls. The maiden to be trained in this form should have a clean, strong and straight stem. Any time from the fall of the leaf to the beginning of March it may be cut back to one foot of the ground. In the Spring three shoots only should be retained, rubbing all others off, and these should be the three highest on the stem. Train the top one upright and the other two to right and left respectively at an angle of 45 degrees. The shoots should be, as nearly as possible, of equal

strength. If one is weaker than the other, shorten the stronger and let the weaker grow. In the Autumn the three shoots should be cut back to six inches. The following Summer three growths should be secured on the upright shoot and two on each of the side-shoots. All new shoots must be trained at an angle of 45 degrees, and the leader upright. All other growths should be stopped at the first leaf. The tree is now a two-years'-trained Fan, consisting of six young shoots and a leader. If this tree is intended for a wall or espalier under five feet in height, the leader and two upper side-shoots should be shortened to six inches and the lower shoots left untouched. In the following Summer two growths should be secured from the leader and two from each of the pruned side branches. In subsequent years the branches should be trained to their full length.

If the two-years'-trained tree is required for a wall or espalier over five feet in height, three shoots should be secured from the leader, two from each of the upper side-shoots, and one from each of the lower side-shoots. The leader and all the side-shoots should be allowed to extend, and as they grow farther apart other shoots should be trained in to fill up the space made.

HORIZONTAL TRAINING.—The maiden should be cut back to one foot of the ground any time in the Autumn or Winter, up to the end of February. Three shoots should be secured from here in the Spring following, the highest to be trained upright and the two others to right and left at an angle of 45 degrees. In the Autumn the leader should be cut back to a foot of the place it was cut the first year. This is to allow a one-foot space between the horizontals. The main branches are not to be stopped in the second year of training, but laterals

must be pinched to the third leaf and sub-laterals (if any) to the first leaf. The two shoots which pushed from the leader should be taken to right and left respectively at an angle of 45 degrees. In the Autumn of the second year the tree should consist of six side-shoots, or horizontals, and a leader. An improvised trellis should be made of canes or stakes to support and tie the branches to. This Autumn the leader should be cut back to half its length. The horizontals and stubby spurs on the stem must be left untouched, but laterals on the horizontals should be shortened to one inch.

The training for subsequent years is only a repetition of the above, except that the side-shoots should be trained more horizontally than before. They should have gained sufficient vigour by now, and it is not now desirable to train them at an angle of 45 degrees.

CORDONS.—There are a number of various forms in Cordon training, but upright or vertical single Cordons are the best.

SINGLE HORIZONTAL CORDONS.—This form is very suitable for making edgings or boundaries. The maiden selected to train in this manner should be strong and have no side-growths. The tap-root should be cut away and the tree shortened to one-third its length. In the first instance the tree should be planted horizontally, or at an angle of 45 degrees as it may be permanently injured by planting in an upright position and then bending it sharply over. In the Spring after planting shoots will push from the stem. All should be rubbed off, except one good strong one, which should be trained forward in a diagonal manner. All laterals should be pinched to two or three leaves. At the end of a line the terminal shoot should be trained upwards. At the

Winter pruning the continuation shoot should be shortened to one-third its length, but the terminal shoot should only have the top cut off near the post. For these trees a wire support must be put up. A single line of strong wire is generally sufficient for most trees.

Single Upright or Vertical Cordons.—The maiden should be strong and healthy. All broken or bruised roots should be pruned off and the tree cut to half its length. Shoots will push in the Spring from the upper buds. The strongest of these should be retained and all others rubbed off. It should be staked, and when it is about a foot in length the top should be pinched off. If this is done before Mid-Summer it will push shoots again. The strongest should be trained forward, and the others may be pinched to the third leaf. Shoots on the previous year's wood should also be pinched at the third leaf. After the Winter pruning blossom buds should show on the two-year-old wood. If the tree makes less than twelve inches of growth in a year the Summer stopping should be discontinued and the tree cut back about a foot to a good strong bud. Lifting and replanting the tree will induce fruitfulness. These trees may grow to any altitude.

Double and Gridiron Cordons.—These trees are treated in the same way as Single Vertical Cordons, except that when the young maiden is cut back two strong shoots should be secured for Double Cordons and three shoots for Gridiron Cordons.

Diagonal Cordons.—These are very like Horizontal Cordons, but they are planted diagonally, or aslant. They are treated in the same way. This method is supposed to insure early bearing.

Routine Operations.

Summer Pruning.—Mostly all trees have two periods of growth. These are Spring and Mid-Summer. The first period is generally over by July, but trees vary greatly. The second is usually continued to a late date. Between the two periods follows a partial cessation, and this makes the buds and wood firm. Summer pruning must not be done too early, as it causes the trees to be crowded with sappy growths. Root-pruning is necessary to lessen the supply of sap. Nevertheless, Summer pruning must not be done too late, as it is very inadvisable to allow long, vigorous growths to form. These may do great harm in appropriating too much sap and shading the young spurs and fruit.

At the Summer pruning the growing shoots should be stopped at the third leaf. Stubby shoots and spurs must be left untouched. Any shoots, laterals or sub-laterals which push afterwards must be pinched at the first leaf. The leading growths of Pyramids and Bushes should be allowed to grow to about a foot in length before they are pinched.

Winter Pruning.—If the Summer pruning is performed properly very little will be needed in Winter. All side-shoots should be cut back to three or four buds. If the tree is likely to become too thick the following year, the growths should be thinned out and all weakly parts cut away. It is very inadvisable to prune the trees in frosty weather.

Mulching.—This is one of the greatest aids to the health of the tree and the perfection of the crop. The mulch should be applied soon after the fruit has set, and it may be added to throughout the Summer. Mulching prevents the soil becoming parched and cracking, and it preserves the moisture. Heavy mulchings are to be avoided. An inch in thickness

of lumpy manure is sufficient. Heavy soils need only be mulched in very dry, hot weather.

SYRINGING.—Outdoor Pears very rarely suffer from Red Spider, and this has seldom to be dealt with. Trees near dusty roads, or those in suburban gardens, may be syringed twice a week to keep the leaves and fruit fresh. Clean water should be used, and the trees should not be syringed more than twice a week.

WATERING AND FEEDING.—All Pear trees would be much better for a thorough watering whenever the soil becomes dry and the weather hot. The water should be given before the soil gets too dry. Adequate quantities should be supplied from June to September. A few sprinklings will not do the least good. A thorough soaking is needed, so that it will reach the roots. More often than not it is useless to wait for rain.

Liquid manure should be given when the fruit commences to swell, and may be continued until full grown. It is best given when the soil is damp. Manures best suited to fruit trees are the drainings of cow-byres and stables. The manure should be diluted with water.

PROTECTING BUDS AND BLOSSOM.—Birds as a rule pay very little attention to Pear buds. The Bullfinch, Greenfinch, Great and Blue Titmouse, together with the Common or House Sparrow, do the most mischief. The Bullfinch is often the worst. Trap cages or birdlime is the best way to catch these depredators. Shooting among fruit trees should not be practised, as it may injure the trees. A very good mixture may be made of the following: Boil two pounds of Quassia Chips in about eight gallons of water for about fifty minutes. As the mixture cools dissolve two pounds of soft soap in it and add a little petroleum. Strain, and syringe the trees with this

mixture when dry. The application should be repeated.

All blossoms are liable to damage from frost, but some more so than others. A single breadth of tiffany or other similar material stretched across the trees prevents the dew from settling on the blossoms. Frost does more harm to damp blossoms than to dry ones. Evergreen sprays are of great service as shelter against cutting winds. All tall-shaped trees may be protected by an awning of tiffany held up by stakes. Care should be taken to put on and take off the protection at the proper time. It should be taken off on warm, sunny days, but on wet, cold, windy days it should be left on.

MANURING.—Pear trees require rather more potash, phosphoric acid and lime than most trees. Kainit and bone meal mixed in equal parts and applied at the rate of two to three ounces per square yard, makes a very good manure for Pears. It should be spread on the ground about the trees in the Autumn, and it may be lightly forked in. Another very good mixture may be made of one part of superphosphate of lime and two parts of nitrate of soda, mixed. From one to two ounces per yard is a sufficient amount to apply. If the soil is deficient in potash the first mixture may be applied in the Autumn and be supplemented by the second in Spring.

If raw manure is applied it should be spread on the surface only. It should be left until Spring, when it may be forked in lightly.

THINNING THE FRUIT.

The trees should never be allowed to bring to perfection a large, heavy crop. If they are allowed to do this they will be ruined in a few years. The number of fruits left on each tree should be in pro-

portion to the size and strength of the tree. The fruit should be thinned very carefully, and it should be cut off with a pair of thinning scissors. Moderate cropping means the perpetual fruitfulness of the tree. Of the large varieties two or three per square foot is quite sufficient. More may be left of the smaller varieties.

PROTECTING, GATHERING AND STORING THE FRUIT.

PROTECTING.—If the Pear crop is not protected in some way it is usually lost. Large Pears for show purposes should be enclosed in muslin bags. The chief thing in ripening is dryness. Fruit is often spoilt through the rain, and every effort should be made to keep it dry. The fruit should not be left on the trees too long.

GATHERING.—If the fruit parts readily from the tree when gently lifted upwards it is in a fit condition to be gathered. Shaking Pears from the trees causes them to decay. The fruit should be taken at once to the fruit-room and be laid in single layers.

STORING.—The long keeping of Pears depends on the atmosphere of the place in which they are stored. A cool, dark place is the best. The room must not be too wet or too dry. It should be just moderate. If it is too dry it causes the fruit to shrivel, and if too wet it is almost sure to spot, and then speedily decay. The room should be cool and air-tight, and no frost whatever must be able to enter.

DISEASES.

CANKER.—This disease is caused by a fungus. The fungus usually takes root on weakly trees on wet, cold, or heavy soils. Chilly Spring weather also produces Canker. Sulphate of iron is very good for trees suffering from Canker. It should be applied as a top-dressing on wet ground early in Spring,

strength for Pears. The trees should be sprayed at intervals of three or four days.

SAWFLY.—The larvæ of this do great damage to the foliage of fruit trees. Spraying with Paris Green, in the same proportion as for caterpillars, can only be practised when the crops have been cleared from the trees. Syringing with a mixture of soft soap and tobacco juice may be practised in August, but the fruit must be very thoroughly washed with clean water the next day. One of the most effectual preventive remedies is removing the soil about the infested trees. This must be done in Winter, and from three to five inches of soil should be removed. Fresh soil should be supplied in place of that removed.

ANTS.—Fresh Guano sprinkled on their nests drives ants away, as does petroleum. Anything sweet will attract ants.

EARWIGS AND WOODLICE. — These are very destructive. Earwigs may be attracted with a boiled potato placed in a pot and partly covered over. Hollow stems form excellent traps if placed on the branches of the trees. The baits should be looked at regularly.

The same remedies apply to Woodlice. The baits and traps should be partly covered over, as the lice abhor daylight.

SCALE.—This infests the younger branches most. The best thing for this is Quassia Extract. Half-a-pint should be used to five gallons of water. If the trees are very bad with Scale they should be taken from the wall and painted with a mixture of sulphur, soft soap and clay. A pound of sulphur and a pound of soft soap should be mixed with four pounds of clay. A little cow manure should be added, and it should be mixed to the consistency of paint. The

trees should be thoroughly painted with this mixture in the Autumn when the leaves have fallen.

WASPS.—Wasps and Hornets seem to have a particular liking for Pears. Cyanide of potassium is immediate death to all wasps. A small piece should be melted in water and a rag tied to a stick saturated with it. This should be placed in the nests of the wasps. The nest should be dug out the next day, as the young grubs will hatch out.

SELECT VARIETIES.

EARLY.

BEURRE D'AMANLIS.—Large and juicy. Slightly perfumed. One of the best early Autumn Pears. Ripe September.

BEURRE SUPERFIN.—Large and juicy. Very good flavour. September to October.

BROCKWORTH PARK. — Large and rich. Very juicy. September.

CONSEILLER DE LA COUR. — Large and richly flavoured. One of the best. Growth very vigorous. October.

DOYENNE BOUSSOCH.—Very large. Hardy and prolific. October.

DOYENNE D'ETE.—Small. Is the earliest Pear. July.

DR. JULES GUYOT.—Large. Crops well. September.

FERTILITY.—Fruit medium, highly coloured. Tree very prolific. September.

JARGONELLE.—Fruit medium. A very good dessert Pear. August.

LOUISE BONNE DE JERSEY.—Of fine flavour. Richly coloured. Crops well. Fruit medium. October.

MARGUERITE MARILLAT.—Large and handsome. August to September.

SOUVENIR DU CONGRESS.—Large and juicy, with a fine aroma. August to September.

MID-SEASON.

BEURRE HARDY.—Large and juicy. A strong grower. End of October.

DOYENNE DU COMICE.—One of the finest-flavoured Pears. Large and handsome. October to November.

DURONDEAU.—Large, rich and handsome. October to November.

MARIE LOUISE. — A very good variety. Large. October to November.

PITMASTON DUCHESS. — Large and handsome. October to November.

LATE.

CHARLES ERNEST.—Very large. Of good flavour. October to December.

CONFERENCE. — Large and of good quality. November.

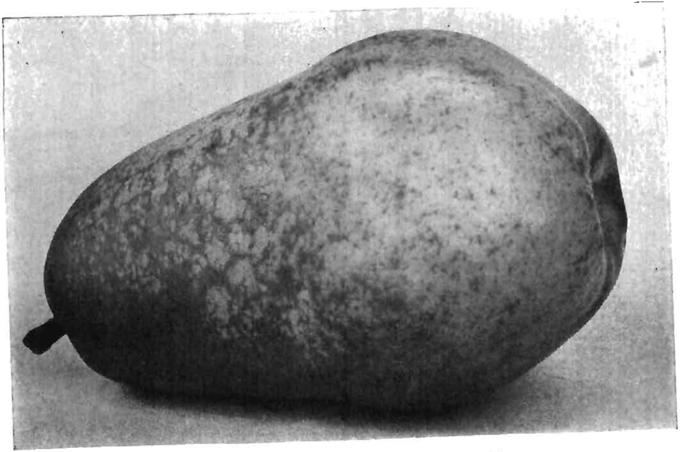
GLOU MORCEAU. — Medium fruit. Rich and sugary. December to January.

COOKING VARIETIES.

UVEDALE'S ST. GERMAIN. — Large and a good cooker. January to May.

VERULAM.—Large. Strong grower. Very hardy. January to March.

VICAR OF WINKFIELD.—Large and a free bearer. November to January.



PEAR, "PITMASTON DUCHESS."

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Aspect.

South walls and situations are by far the best for all Plums. On a western aspect the fruit is very liable to crack. Gages thrive on East walls, while a northern aspect answers for free-bearing Plums or culinary varieties.

Arrangement.

Plums do not, as a rule, make lofty trees. For orchards they should be planted from twelve to fourteen feet apart, and the trunk should have a clear stem of about six feet. The lines should be about eighteen feet apart. Pyramid trees should be about nine feet apart, and the lines should be the same distance. Cordons may be eighteen inches apart and Espaliers from twelve to eighteen feet apart. Fan-trained trees against walls should be from ten to twelve feet apart.

Planting.

The Autumn is the best time to plant fruit trees, but they may be planted throughout the Winter until the buds begin to burst in the Spring. When planting in Winter or early Spring the ground should be in good working order and the weather mild. The trees should be staked securely after planting, and they may be mulched with good half-decayed manure. The leading heads of the trees should be cut back closely in the early Spring.

Training.

Fan-trained trees are the best for walls, and Standards or Half-Standards for orchards.

Fan-Training.—The maiden tree should be cut back to twelve inches of the ground in the Autumn. Of the shoots that push in the Spring, five or six

should be trained in and all others rubbed off. When at this age it is better for the trees to have them in the open ground, and tie the young shoots to a trellis made of canes. When fully trained they may be planted against a wall. The lowest shoots should be about one foot from the ground. In the Autumn the shoots should be cut back to six inches and all side-shoots pinched at the third leaf. In the Autumn of the second year the upper side-shoots should be cut back to six inches, but the two lower ones should be left as they are. The following Spring a shoot should be taken forward from each of the young branches. In the Autumn of the third year (if five shoots were secured at first) the tree should consist of ten side branches, regularly disposed, and a leader.

In after years the training is almost the same. If a branch dies a young growth should be trained in in its place.

CORDON-TRAINING.—Cordons do very well against walls. The maiden tree should be cut back to about fifteen inches in the Autumn after planting. In the Spring following a good strong shoot needs to be chosen as leader, and one shoot may be retained on each side of the leader. If the tree is to be a Diagonal Cordon plant it on the slant. All other shoots should be pinched at the third leaf to form fruiting spurs. The leader should be trained its full length and laterals shortened to the first joint. If the tree is very vigorous it should be lifted in October and the roots shortened. After re-planting cut the leader back to one-third its length. Then cut the laterals off close to the stem. The following Spring laterals may be encouraged on the previous year's growth.

Upright Cordons should have the leader pinched at twelve inches of growth; this is to strengthen the

base of the trees. Select a leader from the shoots that push. Cordons usually need to be lifted to check luxuriance of growth.

ESPALIERS.—This form of tree is not in great demand. An Espalier is usually a Fan-trained tree, but when the side branches have grown to about two feet in length they are trained outwards in a straight line.

STANDARDS. — When training maidens as Standards it is not advisable to head them in the first year, as it usually causes a kink in the stem—which should not be. Low or Half-Standards have a straight stem of four feet. Standards are trained in the same way, but the stem must grow to six feet in height before the head is formed. The young maidens should be securely staked so that the stem will be perfectly straight. A well-formed head is spoilt if the stem is crooked.

The top should be pinched off the young tree in the second year, not less than six inches from where it will be pruned in the Winter. This may be done in June, or even a little sooner. Shoots will push from the top, and these should be pinched at about the fifth leaf. Any laterals that push on the stem may remain throughout the Summer, but should be shortened to four leaves in September. At the Winter pruning these must be cut off close to the stem and the leader cut off about six inches below the place where it was pinched. In the Spring of the third year three or four shoots will push, and these should be encouraged, as they will form the head. Three shoots is the usual number to have at first, and they should be, as near as possible, equal in every way. At the Winter pruning the shoots should be cut back to three good buds, and growths on the stem cut close off. In the fourth year two

shoots should be secured from each small branch. These should be shortened to about six inches in the following Winter, and any laterals on them should be pinched at the first leaf. In the fifth year two more shoots should be secured from each branch, and these should be trained a little to the sides.

The tree has now sufficient main branches for a Standard, and no more training should be required, but attention must be given to pruning. The branches should be kept thinly disposed, so that the tree can get plenty of light and air.

PRUNING.

The fruit of Plum and Damson trees is produced on young shoots of the previous year's growth, and also on spurs, and this must be remembered when pruning.

SUMMER PRUNING.—Very little pruning is needed in the Summer. Some trees' Summer growth is confined to short stubby growths, and it is fatal to the next year's fruit crop to remove these. If the spurs are very thick they may be thinned out and all weak parts may be removed. If the vigorous young shoots which will push from parts of the trees are not wanted for laying in, the buds should be rubbed off in the Spring.

WINTER PRUNING.—If the trees have been properly trained from the first, and looked after in the Summer, there will not be a great deal to do in the Winter. Only the very long spurs need be shortened. If shoots push from the shortened spurs they should be pinched in the Summer and shortened to about two buds the next Winter. Long, vigorous growths will need to be shortened to half their length.

Root-Pruning.—Root-pruning is practised to check too vigorous growths; it must be done with great care, the ends of the roots being pared quite smooth. If they get damaged or bruised in any way a large number of suckers will commence to grow. The strong roots only should be shortened.

Manuring.

All manures applied should be of a durable nature. The best chemical manures for Plums and Damsons are bone meal and Kainit. Good, short stable or farmyard manure is the best for them. It may be applied in the Autumn or Winter, or in May or June as a mulch. Liquid manure from stables or cow-byres may be applied in Summer or Winter if diluted with water. A mixture of two parts bone meal and one part Kainit may be applied in the Autumn. Two ounces per square yard is sufficient, and it may be forked in very lightly. When this has been given in the Autumn a dressing of nitrate of soda may be applied in the Spring. One ounce per square yard is sufficient, and if liked it may be given in three dressings—one before and after the blossom opens, and another when the fruit is about half its size. This will help the fruit to swell.

Routine Operations.

Syringing.—Occasional forcible syringings are very valuable to the trees. Syringing clears the trees of insects and dust, and also keeps Red Spider down. Syringe in the evening, as at this time it will be of more value, and discontinue as soon as the fruit begins to change colour.

Protecting the Blossom.—The Plum does not require so much protection as other fruit blossom, as

it is much more hardy. Netting is the best for Plums and Damsons, as it admits more air than tiffany. If the weather is very severe it may be hung across the trees in two or three thicknesses. The protection should be taken off as soon as the frosts have safely gone.

THINNING THE FRUIT.—Good Plum "seasons" occur about every three years. Trees in good condition are then hardly ever able to bring to perfection all the crop they bear. Therefore, thin freely, commencing about three weeks after the blossom has fallen. A pair of long thinning scissors is the best thing to use. About three weeks later the trees should be looked over again, removing all fruit which has grown too close together since the last thinning.

To obtain large, perfect fruit, first thin properly, and then expose to all possible light and air. Drought should be guarded against, and all superfluous growths cut away. Liquid manure may be applied in May or June, and this should be followed by a good mulch.

GATHERING AND STORING.—Plums for dessert must be perfectly, but not over ripe. They should be gathered by and with the stem, for if the fruit is touched the bloom soon rubs off. The fruit should, *whenever possible, be gathered dry; when it has to* be gathered wet it should be laid singly in a cool, dry room.

Some plums keep for several weeks, but they must be gathered before they are quite ripe, handled very carefully, and put in an airy room for a few days. They should then be laid singly on clean paper, either on the shelves of the fruit-room or in boxes. The room must be dry and frost proof.

BLADDER PLUMS.—This disease is known by the bladder-like appearance of the young fruit. They are very large and long, and are covered with a greyish bloom. It is caused by a fungus which lives in the twigs all the year round. Infested parts should be removed and burned at once.

MILDEW.—In some years this is very harmful to the setting fruit. The best remedy is sulphur. All affected parts should be well dusted with it. The trees may also be sprayed with a solution made with half-an-ounce of sulphide of potassium to a gallon of water. Rain-water should be used if possible.

ORANGE FUNGUS.—This disease causes thick orange-coloured spots to form on the leaves. It causes the leaves to fall off and the fruit to shrivel. The most effectual remedy for this is Bordeaux Mixture. It should be used at a strength of one in a hundred, or 1 per cent. The trees should be syringed when the leaves are quite young. As a preventive the ground may be forked over in the Spring. Infested leaves should not be allowed to remain on the ground.

GUM.—The only remedy for chronic gumming is to remove the whole tree. Over-feeding, very rich soil, low sites, stagnant water at the roots, and loose soils all induce gumming, and all these causes should be avoided. The ground should be thoroughly drained and the soil should be firm.

ROT.—This is about the worst disease the Plum is subject to. It appears on the fruit in yellowish-white patches, and it prefers fruit which is just ripening. The half-ripe Plums shrivel when attacked, and are unfit for use. There is no real cure for this

disease. Bordeaux Mixture may act as a preventive. The trees should be sprayed with it when the fruit is quite small, and the strength should be one per cent. All affected fruits should be removed and burned.

ENEMIES.

APHIDES.—Aphides usually infest the growing shoots of the trees. Tobacco and Quassia are two very good remedies for Aphides of all kinds. Tobacco powder may be dusted over the trees, or a solution may be made from strong tobacco. If Quassia Extract is used, half-a-pint should be added to five gallons of water.

CATERPILLARS.—The caterpillars of a number of moths feed on the young growths of the Plum. Syringing with Paris Green usually proves effectual. One ounce of Paris Green paste to ten gallons of water makes a good solution. It should be kept off the hands, as it is very poisonous, but the paste is less dangerous than the powder.

RED SPIDER.—These often attack the trees in hot, dry weather. The best preventive is forcible syringings, and the roots should never lack water. An occasional syringing with Quassia Extract will benefit the trees. It is best to syringe the trees in the evening.

MITES.—These are very troublesome little pests, which cause galls to form on the leaves and shoots. As a preventive the trees may be sprayed with Paris Green when the leaves are quite young. One ounce of the paste to fifteen gallons of water will make a solution of sufficient strength. The only effectual remedy for this is to remove all affected parts and burn them.

RED GRUBS.—The moths of the grubs are very small, and are very seldom seen. The eggs are laid

on the half-grown fruit, and the grubs eat their way into it. The fruit then ripens prematurely and falls, when the young grub crawls out. If the attack is a slight one it suffices to collect all fallen fruit and burn them. The trees may be sprayed with Paris Green when the fruit is quite small. It should be used at the same strength as for "Mites."

Sawfly.—The eggs of this fly are laid in the blossom, and when the larvæ are hatched they feed on it and destroy it. The blossom falls, and the larvæ crawl out of it and go down into the ground. All fallen fruit should be collected and burned. The soil about the trees should be removed to a depth of four inches and fresh soil supplied. The trees may be syringed in August with soft soap. Two ounces should be added to a gallon of water, and a little tobacco juice may be added. They may also be syringed with ordinary soapsuds, but both applications must be very well washed off a day or two later.

Slug Worm.—Attacks of Slug Worm should be treated in exactly the same way as "Sawfly."

Thrips.—These do not attack Plum trees except in very hot, dry seasons. They feed on the leaves and shoots, and sometimes attack the young fruit. The trees should be syringed with a soft soap solution. Two ounces of soft soap should be added to every gallon of water, and about half a pint of tobacco juice may be added per gallon of the mixture. It should be applied warm, but not too hot, and it should be washed off the day after each application. The solution may be applied once a week until the trees are free from the pest.

White Scale.—This sometimes attacks the stems and branches of Plum trees, but not so much outdoors as indoors. The best thing for this is Quassia Extract. Half-a-pint to four or five gallons of water

will soon remove the Scale. The syringings should be repeated at intervals of two days.

WEEVILS.—Weevils often feed on the young buds and leaves. About April most kinds of Weevils appear as wingless beetles, and they may then be easily caught at night. No rubbish should be left about, as they hide in this by day. All holes in walls should be filled up. Spraying the trees in Spring with a petroleum emulsion may act as a preventive.

VARIOUS ENEMIES. — Woodlice, Earwigs, and Beetles are all very fond of ripe Plums, and Wasps, Hornets and Bluebottle Flies often do great damage. With regard to the three former, all rubbish should be cleared away, and a sticky band may be placed round the stems of the trees. Boiled potatoes will act as traps. They should be placed in pots and partly covered with moss. These traps should be looked at regularly.

All the Queen Wasps possible should be killed in the Spring, and there will be less nests in the Autumn. A small piece of cyanide of potassium dissolved in water is a very good thing to destroy the nests. This should be handled very carefully, and never be left about, as it is highly poisonous. A piece of rag should be soaked in it and tied to a stick. The stick should be inserted in the nest, and it should be dug out the next day, as if it is left the young grubs will hatch out. The same applies to Hornets, but their nests should be approached with more care. Clear glass wide-necked bottles, filled with a mixture of beer and sugar, prove sure traps for Wasps and Flies.

SELECT VARIETIES.

ADMIRAL.—Fruit large. Good culinary variety. Heavy Bearer. Purple. October.

*COE'S GOLDEN DROP.—A fine variety for walls. Fruit large, oval and yellow. Ripe September.

THE CZAR.—A large, early Plum. Very productive. Vigorous grower. Purple. August.

*DENNISTON'S SUPERB.—Fruit round and medium. Rich and sugary. Very hardy and a great bearer. Yellowish-green. August.

*JEFFERSON.—Fruit large and oval. Rich and juicy. Bears freely. Golden yellow. September.

*KIRKE'S.—Fruit large and round. Very rich and juicy. Dark purple. September.

MONARCH.—Fruit large. Vigorous and prolific. Dark purplish-blue. September to October.

POND'S SEEDLING.—Fruit very large and oval. Excellent bearer. Dark red. Ripe September.

PRESIDENT.—Fruit very large. Sweet and rich. Free bearer. Deep purple. October. A very fine late variety.

PRIMATE.—Fruit large and juicy. Bright purple-red. October.

VICTORIA.—Fruit large, oval, juicy and sweet. Very prolific. Red. September.

GAGES.

*COUNT ALTHANN'S GAGE.—A fine late variety. Bears freely. Reddish-blue. September.

*EARLY TRANSPARENT GAGE.—A great bearer. Very hardy. Fruit very sweet. Greenish-yellow. End of August.

*GOLDEN TRANSPARENT GAGE.—Fruit medium and of rich flavour. Yellow. October.

* Dessert varieties. All others are Culinary.

DAMSONS.

Frogmore Prolific.—Fruit large. Tree vigorous and a good bearer. September.

King of the Damsons.—Fruit juicy and sweet. A great bearer. September.

Langley Bullace. — Fruit large. Excellent flavour. October to November.

Merryweather.—Fruit large and round. Is the largest Damson. October to November.

Shropshire Prune.—Fruit large and oval. September.

QUINCES.

A Native of Northern Persia, the Quince is said to have been introduced from the Island of Crete to the other parts of Europe. The leaves are alternate and entire; the flowers large and white, sometimes with a tinge of rose; the fruit is pear-shaped, yellowish, and cottony. When ripe it emits a strong, peculiar perfume. It is very hard in the raw state, but when boiled with sugar makes an excellent preserve, which is much esteemed for its flavour.

Propagation.

Seedlings are only used for stocks on which Pears are to be established; they are raised in the same way as Apple or Pear seedlings, although the seed from British fruit seldom ripens in this country. Cuttings inserted in the open ground in the Autumn soon root. This and layering are the usual methods of increasing. Layers are generally made from the young shoots of a tree which has been cut down to the ground. They are pegged into the ground in Autumn, and detached and planted in rows the following Autumn. Grafting may be performed in March or April, and budding in July.

General Management.

The Quince seldom perfects its fruit in the extreme North, but succeeds in an open, sunny, but sheltered situation in other parts. It thrives as a Standard in the South of England. It may be grown

as a Standard, Low Standard, or Bush, but for commercial purposes Low Standards on a clean ground are the best.

The Quince thrives in an easily-worked soil—a light, free, and moist alluvial soil. It does not succeed in heavy clays or dry, sandy soils. It is partial to damp soil, and, if possible, it should be planted in swampy ground or on the margins of ponds. Autumn is the best time to plant Quinces. Bushes and Pyramids may be planted from six to nine feet apart, and they may be kept compact by lifting. Low Standards should be planted from four to five feet apart, and tall Standards from six to eight feet apart. After the principal branches have become established little pruning is required. Summer pruning may be practised as for Pears on garden trees. Root-pruning counteracts undue vigour.

The fruit ripens in September, October or November, according to the variety. It should be gathered dry before the frost affects it. Quinces will keep six to twelve weeks in a cool, frost-proof place, but they should not be stored with other fruit, as they impart a flavour not their own. A large number of Quinces are imported, and a few growers find the crops profitable.

Varieties.

Apple-Shaped, or Orange.—Fruit large. End of August to beginning of September. Strong grower and very productive.

Mammoth.—Fruit large. A vigorous grower.

Champion.—An American variety. Fruit very large. Tree bears abundantly when young.

Pear-Shaped. — Fruit large. Most commonly grown. Ripe in September.

Portugal.—Ripe in October. Tree large and less hardy than other varieties. Requires a warmer situation.

RASPBERRIES.

The Raspberry is found wild in most of the countries of Europe, including Britain. It is a deciduous shrub with a creeping root-stock. The stem is biennial, and the root perennial. The berry is one of the most valuable of soft fruits for tarts and preserves. It is particularly rich in juice, and though this makes it difficult to handle and transport, it gives it added value in fruit salads, ices and stews. It may also be utilised for summer drinks, Raspberry vinegar and Raspberry acid being the two usual forms.

Soil and Situation.

The Raspberry will almost grow in any soil or place. Alluvial, sandy soil is the best. A good deep loam on clay is more substantial for the roots. Soils which are mixed with flints or gravels are also suitable, but they should be free from stagnant water.

The Raspberry thrives in sheltered, shady places in woods, but it grows as well in the open. It also thrives in high, but damp situations. If a succession of fruit is desired a few canes may be planted in a North border. These will fruit later than those in the open.

Arrangement.

The most suitable arrangement for private gardens is single rows. Posts should be put up twelve feet apart, with four wires. The canes should be tied to the wires. Most old-fashioned gardeners prefer the arch system. The rows should be five feet apart and the plants five feet asunder in them. The plants are arched over and tied to a single wire. This is a very good plan, and the fruit is easily picked. In warm localities the lines of arched canes should run North

and South, but in cold localities the lines should run East and West.

PROPAGATION.

Raspberries are increased by means of seeds, cuttings and suckers.

SEEDS.—These germinate readily, and the canes usually bear fruit in the second or third year. Seedlings sport very much, but occasionally a superior variety may be obtained. The seeds should be separated from the pulp and dried a little. They may be sown in the Autumn or Spring. They should be sown in a light, rich soil, in drills one foot apart. The situation should be open. The seedlings may be transplanted the following Autumn to eighteen inches apart in rows two feet asunder. The canes should be cut down to four inches of the ground in the Autumn. If they are not they will fruit instead of making growths for the coming year.

CUTTINGS.—These should be taken from well-ripened canes. They should be about nine inches in length, and be inserted nearly the whole of that length in light, rich soil, in a moist, shady place. Root cuttings may also be taken. They should be cut in three or four-inch lengths and placed in pans of sandy soil. This should be done in the Autumn, and they should spend the Winter in a cold frame. They should be planted out in rows in the Spring. They usually form good canes the first season, but they should be cut back to four inches of the ground.

SUCKERS. — Good strong suckers should be detached from the main root and planted in the early Autumn. They should be cut down to the ground the first year.

PLANTING.

Raspberry canes should be planted immediately after the leaves have fallen, and planting may be

carried on throughout the Winter in mild weather. It may be continued until the buds commence to swell in the Spring. The roots should be spread out to their full length. Fine soil should be used when planting, as rough soil hinders root formation.

Pruning and Training.

Pruning.—February is the best time to prune, as by this time in favourable circumstances the canes will have obtained a firm hold of the soil. The canes may be shortened to the ground, and not more than four inches from it. This is done to ensure strong, young growths from the base of the plants. Newly-planted canes should always be cut down to the ground. The old canes should be removed soon after fruiting. The young ones which are to take their places should be shortened to two inches above the top wire in Spring. As some varieties grow much thicker than others the canes should be thinned out to one foot apart—if in single lines. If in clumps four or five canes should be left to each clump.

Training.—The best method of training is the straight-up system. If the canes are arched the fruit is kept clean and is easily picked. Four or five of the best canes from each clump are bent over until they meet, and are tied to a single wire. The tops should be cut off above the crossing. In the single lines the canes should be one foot apart, and should be tied to the four wires.

Manures.

In mild Winter weather liquid manure may be advantageously applied. Three parts of superphosphate and two parts of Kainit, mixed, may be spread on the ground and forked in, in the Autumn. Three pounds per rod is a sufficient amount to apply. Two

pounds of nitrate of soda per rod may be applied in the following Spring.

Duration of Plantations.

The duration of Raspberry plantations depends greatly on the culture. On good, deep soil the canes may last for twenty years with proper care. They last longest on well-manured land. On the poorest of land the canes usually remain five years. A new plantation should be made at least two years before breaking up the old one.

Routine Operations.

Summer Treatment. — Raspberries should be regularly hoed in the Summer. This is to keep down the weeds, which take up all the moisture. The hoeing should be done lightly, so that the surface roots will not be destroyed. All suckers not wanted should be pulled up. In August the tops of the Summer shoots may be pinched off. The fruiting canes should be removed when the crops are gathered.

Winter Treatment. — The canes should be thinned out for the next year. When the rows have been made tidy the Winter dressing may be applied. Good farmyard or stable manure should be spread over the ground from one to two inches in thickness. It may be lightly forked in, great care being taken not to disturb the surface roots.

Watering.—In ordinary seasons watering is not necessary. A few good soakings in really dry weather will be of great benefit to the canes, as will one or two soakings of liquid manure. It should be given just before the fruit commences to ripen, but not afterwards.

MULCHING.—*In very shallow soils mulching becomes* a necessity. The ground should be covered with short, littery manure when the flowers appear. In any case mulching preserves the moisture. A mulch of strawy manure may be applied to heavy soils to prevent them cracking.

PROTECTING THE FRUIT. — White - throats, Warblers, Bullfinches, and Black-caps, and a few other birds are all very fond of Raspberries. Small-meshed netting should be provided to keep them out. Usually the canes are high enough to support the netting, but if they are not posts should be put up at intervals.

GATHERING THE FRUIT.—Raspberries should be very carefully gathered. For dessert the stalk and husk should be intact. The fruit should be picked when dry, and it should be just ripe enough to part readily from the core. If gathered when wet the fruit should be laid out thinly in an airy room to dry. No fruit is sooner spoilt by wet weather than the Raspberry.

DISEASES AND ENEMIES.

DISEASES.

Most of the fungi which infests Raspberries are found on the dead parts. Therefore no dead parts should be left on the canes, and pieces *which are cut off should be burnt. One fungus preys* on the leaves, and causes them to fall. It appears on the under-surface of the leaves in the form of small dots. They are yellow in colour at first and change to dark brown. The safest remedy is to pick the leaves affected and burn them. Poisonous solutions must never be used on the Raspberry, as it is a very tender plant and cannot stand such things.

ENEMIES.

RASPBERRY BEETLE.—This is found in June, and it feeds on the pollen and stamens of the flowers. The old canes should be removed after fruiting, and all old wood and rubbish should be burned. The soil should be removed from the base of the canes and fresh put in its place. Tarred trays are often very useful for catching the beetles.

RASPBERRY MOTH.—This moth appears in May and June. When the buds begin to swell in Spring the caterpillar leaves the ground, crawls up the canes, and enters a bud, on which it feeds. It goes from one bud to another. As the caterpillar lives in the ground from Mid-Summer until March, all rubbish should be cleared away from the base of the plants. The soil should be removed, and a mixture of wood ashes and soot spread about the canes and covered with fresh soil. Very badly-infested canes should be cut away and burnt when the caterpillars are in the buds.

RASPBERRY MITE.—The eggs of this Mite are quite invisible to the naked eye. The Mite feeds upon and destroys the young tender growths. Any affected buds may be cut out, but if the canes are badly infested they should be cut down to the ground and burnt. Affected buds may be known by their blackened tips, and they are much larger than the "good" buds.

RASPBERRY WEEVIL.—There are several kinds of Weevils which often do great harm to Raspberry plantations. They destroy the flower buds mostly. The best way to destroy the Weevils is to shake the canes over tarred trays. This is best done at dusk, as the Weevils are not seen much in the daytime. The top soil should be removed and fresh soil put in its place.

SELECT VARIETIES.

BAUMFORTH'S SEEDLING.—Fruit large; dark crimson. Very productive. Canes vigorous.

NORTHUMBERLAND FILBASKET.—Succeeds well in the North. Canes vigorous. Fruit large.

RED ANTWERP.—Excellent for dessert. Fruit large and juicy. Very productive.

HORNET.—Fruit large; deep red. A good bearer. Canes very strong.

SUPERLATIVE.—Fruit large, rich, and juicy. Canes very sturdy. A heavy cropper.

YELLOW ANTWERP.—Fruit large, juicy and sweet. Pale yellow. Very productive.

THE DEVON.—Strong red canes. Heavy cropper. (See plate opposite.)

AUTUMN BEARERS.

QUEEN ALEXANDRA.—Very large fruit. One of the best Autumn-fruiting varieties.

BELLE DE FONTENAY. — Fruit large and well flavoured. Canes sturdy. Free bearer.

RED OCTOBER. — Fruit medium. Bright red. Canes vigorous.

YELLOW OCTOBER.—Fruit pale to deep yellow. Medium. Juicy and sweet. Free bearer.

HAILSHAMBERRY.—Fruit very large. Rich crimson. Flavour excellent. Foliage large and handsome.

TREATMENT OF AUTUMN-BEARING RASPBERRIES.

As the above do not produce fruit on the previous year's wood all the shoots should be cut down level with the ground in February or March. The strongest of the growths that push should be retained at about one foot apart. The canes should not be topped, as the fruit is produced on the crown of these in the Autumn.

RASPBERRY, "THE DEVON."

Fruit firm and of good flavour. A red-stemmed Raspberry.

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STRAWBERRIES.

THERE are few gardens in which Strawberries are not grown. They afford the first ripe fruit of the year, and are held in high esteem by most people. They are extensively cultivated in most parts of the country.

SOIL.

A strong loam is the most suitable, especially when of a limestone nature. Light and shallow soils are the worst. Such soils are improved by a dressing of clay marl applied in the Winter and dug in early in the Spring. Very heavy soils are not good. Under-draining is necessary in wet land. A fair amount of well-decayed manure, wood ashes, and a small amount of slack lime should be applied to the soil and thoroughly trenched in.

PROPAGATION OF STRAWBERRIES.

Propagation is effected in three ways—by division, by runners, and from seed. Seedlings cannot be relied on, except the Alpines, and these do best raised from seed.

DIVISION.—A plant consists of one crown at first, and increases to many as it ages. These smaller crowns can usually be detached with a few roots. They should be planted carefully in October or February.

RUNNERS.—Most varieties make runners readily. They are best layered in three-inch pots half plunged between every other row. This arrangement leaves room for watering and gathering the fruit of the old

plants. Fill the pots to within half-an-inch of the rim with rough, turfy loam. Place the plantlet in centre of pot and secure with a peg. When the pots are full of roots detach runners and stand pots in a shady place on ashes until ready to plant. The sooner they are planted the better. The plants should be well rooted in about three weeks. Another plan is to use pieces of turf cut into three or four-inch squares and placed close together. Layer a runner in the centre of each portion. A third plan is to stir the soil round the plant, water well if dry, place the plantlets into it about half-an-inch, and secure with flat stones or pegs. Yet another method is to place the runners in rows early in the Autumn, dividing them into sizes. The largest should be placed in rows twelve inches apart and six inches from plant to plant. The smaller runners may be placed closer. They should be moved to their fruiting quarters in March. The strong plants only will produce fruit the first year.

Situation.

The Strawberry is never found wild where water lodges, but always on knolls or ground through which it passes freely. Cultivated plants must not have water-logged soil, but a fertile medium, in a situation open to every ray of light from sunrise to sunset.

Planting Strawberries.

From the middle of July to early August is usually the Summer planting season. This is the best time to plant, but Strawberries may be planted from the middle of March to April. The rows in most soils should be thirty inches apart and the plants fifteen inches asunder in them. Compact-growing varieties may be placed a little closer. The smaller growing

varieties, such as "Grove End Scarlet," may be grown in beds. Plant the runners nine inches apart, leaving out every fifth row to form an alley. Allow the others to grow into a mass. The plants should be carefully lifted, well and firmly planted, and watered if the weather be dry. Plant just level with the neck, so as to cover the roots, and firm the soil well about them. Moist weather is the time to plant.

Summer Treatment.

July or August set plants should have all runners cut off and the Dutch hoe employed to destroy weeds and keep the surface open. On the eve of Winter apply a top-dressing of short, dry, open manure, placing it up to the plants, but not on the leaves. Give water freely in dry weather.

Watering and Feeding.

If, as the plants advance into flower, the weather prove dry, they must receive a thorough watering. A mere sprinkling is no good. Liquid manure may be given at this time, again after the fruit has set, and once more when it is half-swelled. Water may be required twice a week on light soils.

Thinning the Crop.

When it is desired to have large fruit, select the strongest flower trusses, leaving only nine to twelve fruits per plant. Remove all other flowers. Strawberries should always be bedded with clean straw.

Protecting the Fruit.

Blackbirds and thrushes attack the fruit as soon as it changes colour. Repaired herring nets supported well above the plants foil the birds. This is readily done by driving stakes at about six feet apart up every second or third row, the stakes being three

feet above the ground. Tarred string should be tied in the line of stakes and crosswise. The net should be weighted at the bottom so that the birds cannot pass under. A gun should be used in large cultures.

Gathering the Crop.

Fruit for dessert should be picked with as much of the stalk as is sufficient for handling. The morning is the best time to pick the fruit. For any purpose it is best picked with the calyx on.

Trimming the Plantation.

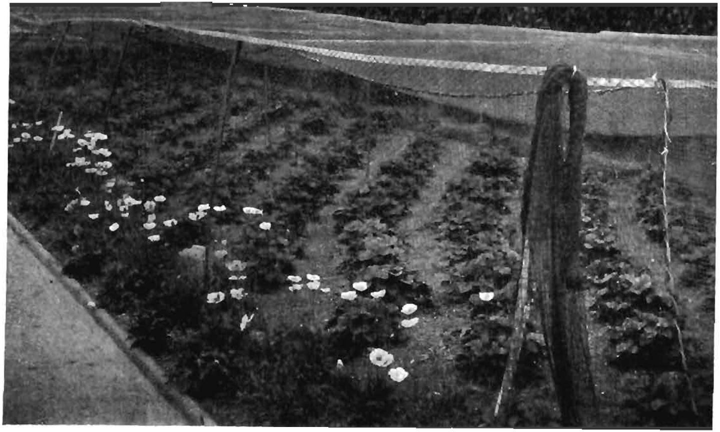
When the crop is cleared the runners and the oldest and largest leaves should be cut away. The secret of success lies in clearing away all such rubbish. The young leaves need all the light and air they can get. If the ground has become very close it should be lightly stirred with a fork. The roots must not be disturbed.

Manures.

If stable or farmyard manure cannot be obtained soot must be used. It is very good for all soils, and tends to keep down slugs. It should be applied to the soil in Spring. On poor land a mixture of bone meal and Kainit should be applied in the Autumn, and follow this with a dressing of nitrate of soda in the Spring. Nitrate of soda is very valuable on dry soils. It should be powdered and kept from the crowns.

Winter Treatment.

Digging between the rows with a spade is injurious. The soil should be lightly turned over with a fork in the Winter to secure a good tilth. Plants in beds are much benefited by a dressing of leaf mould or well-decayed manure in February or March. The



STRAWBERRY BED NETTED TO PROTECT FROM BIRDS.

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stems should be covered so that the roots may grow freely in fresh material.

Strawberry Enemies.

Parasitic Fungi.—This fungi produces brownish-red spots on the leaves. When these spots are very abundant they injure the leaves and weaken the plants. Plants in clay soils are most liable to attack. Spraying with Bordeaux Mixture before the flowers open, and the young plants in August, is the best preventive. The strength of the mixture should be one ounce copper sulphate to three and a half gallons of water.

Mildew.—Mildew is peculiar to some varieties, notably "Black Prince," "John Ruskin," "Sir Joseph Paxton," and "Pioneer." Drought conduces to attacks outdoors, and a close atmosphere to infestations under glass. The first is remedied by soakings of water, mulching, and abundance of food; the latter by judicious ventilation. Sometimes the fruit is attacked with "spot" when commencing to ripen. It is induced by damp. The plants should have ample room in every way.

Mice and Millipedes.—Mice will take the fruit and pile them in heaps; they eat the seeds. Small, steel, spring traps baited with cheese and set near the fruit will secure them.

Slugs are very troublesome. Nitrate of soda is a good remedy and beneficial to the coming crop. So also is soot and lime if kept off the plants. Millipedes destroy the fruit greatly. Pieces of mangold-wurzel placed on the straw near the plants will attract them, when they are readily destroyed.

Eelworm.—An attack of Eelworm in some parts is known as "Cauliflower Disease." All infested plants should be burned. A mixture of superphos-

phate and Kainit in equal parts should be applied in the Autumn and a dressing of nitrate of soda in the Spring.

Grubs of the Spotted Garden Gnat sometimes cut off the flower stalks close to the ground. Searching for and killing the grubs is the surest remedy. Caterpillars sometimes prey on the foliage. They are best removed by hand-picking. Weevils also prey on the foliage and the grubs on the roots. Cuckoo Spit is very troublesome at times. It is destroyed by crushing with the hand, or by syringing with a solution of soft soap—one ounce dissolved in a gallon of hot water, adding a wineglassful of tobacco juice and applying when lukewarm. It should be washed off an hour afterwards with clean water.

APHIDES.—Aphides are never very troublesome on outdoor plants. Should they appear, syringe them with tobacco juice, diluted with six times the quantity of water. It should be washed off afterwards.

RED SPIDER.—Red Spider is a most injurious enemy to Strawberries. It is a consequence of drought. The best preventive is copious waterings, abundance of food, and forcible syringings. If plants are properly syringed every day there will be no Red Spider.

EARLY VARIETIES.

ROYAL SOVEREIGN. — Fruit very large. Plant healthy and a free bearer.

KING GEORGE V. — Something like "Royal Sovereign." A very good variety.

VICOMPTESSE HERICART DU THURY.—Valuable for general cultivation, and well adapted for forcing.

MID-SEASON VARIETIES.

PRESIDENT. — One of the best for general cultivation.

Sir Joseph Paxton.—Excellent for general cultivation, but liable to Mildew.

Late Varieties.

Latest of All.—Plant vigorous, with good foliage. Able to resist drought, and a good bearer.

Elton Pine. — Plant vigorous, hardy, and prolific.

Waterloo.—One of the best late varieties. Fruit often very large.

Givon's Late Pine.—One of the best late varieties.

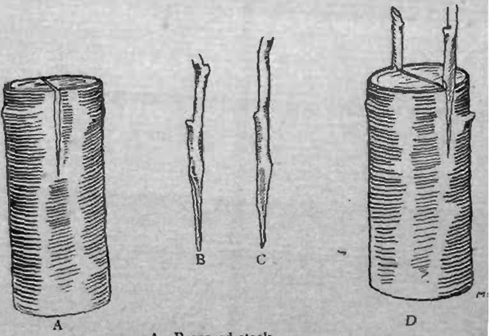
Laxton's Latest.—A fine late variety.

GRAFTING.

GRAFTING is used for the increase of young trees and to make unhealthy trees into healthy ones; also to make worthless trees fruitful. The best time to graft is early April, if weather is suitable. Some seasons (like 1919) one has to contend with snow in April.

Young stocks can be grafted sooner than old stocks. A careful watch should be kept to notice

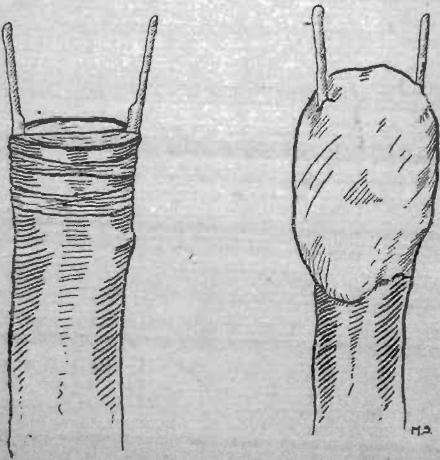
TONGUE OR WHIP-GRAFTING—I.



A—Prepared stock.
B—Prepared scion—side view.
C— ,, ,, —back view.
D—Grafts inserted.

when the sap is flowing freely. All scions ought to be cut and labelled and laid in on a North border by the end of January. The stocks must be headed back in February. Great care has to be taken with

TONGUE OR WHIP-GRAFTING.—II.

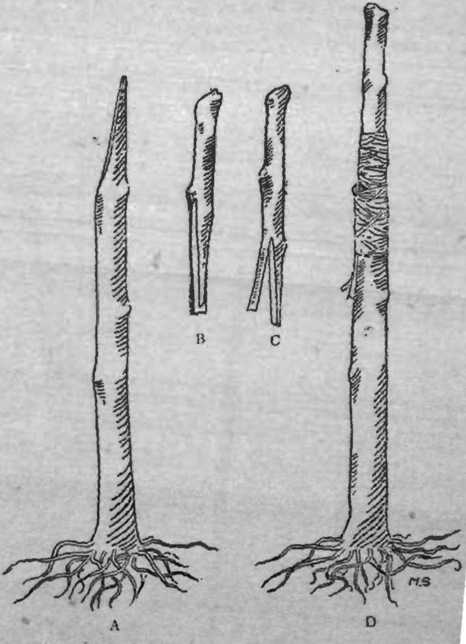


A B

A—Scions or grafts firmly bound.
B— ,, ,, ,, covered with grafting wax or clay.

the grafting of the Cherry and the Plum. The stocks and scions of both require to be cut early. The Apple and Pear will do later. Always head back in open weather, as frost is very injurious.

DOUBLE TONGUE OR WHIP-GRAFTING.

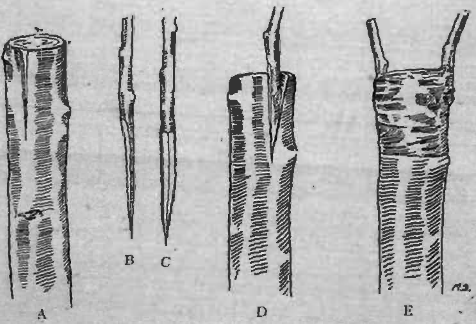


A—Prepared stock.
B & C—Prepared scion—side and front view, showing double tongue.
D—Fitted together and bound.

Scions should be of well-ripened wood, free from Canker or American Blight. The shoots must always be well supplied with wood buds.

The grafter must have a sharp knife, and should begin at one end of the row of stocks. Cut off a small portion of the headed back stock. Take a scion and make a slanting cut about two inches long, leaving three buds. Cut a corresponding slant on

WEDGE-GRAFTING.—I.

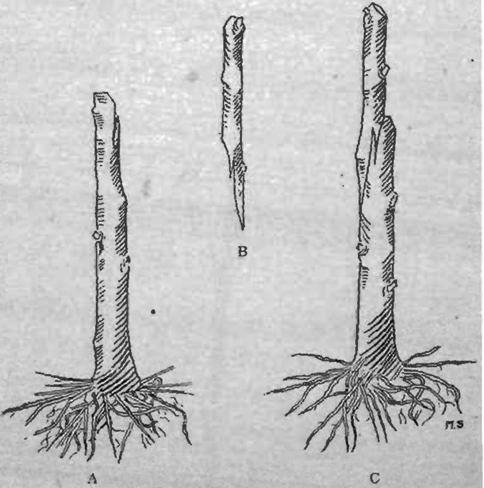


A—Prepared stock.
B & C—Prepared scions—showing wedge.
D—Graft inserted.
E—Finished grafts.

the stock. Place the two together, and see that they fit exactly. Some prefer to cut a tongue, but I think that is not necessary. If bark is fitted to bark properly the graft is almost sure to grow. Bind firmly with raffia and tie carefully. Then dress the binding with grafting wax or clay.

A person can make his own grafting wax, but I think a great amount of the ingredients are not required. One is better to buy it, as there are some good preparations on the market. "Tenax" is one

WEDGE-GRAFTING.—II.

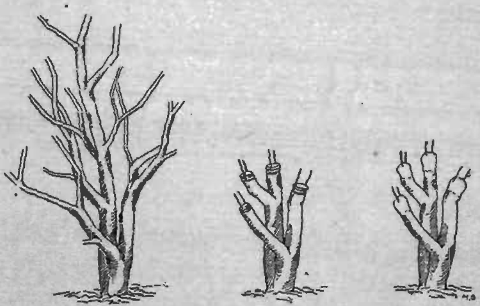


A—Prepared stock.
B— ,, scion, showing wedge.
C—Scion placed in position.

of the best. When this operation has been performed, look over them again to see that there are no cracks. If so, fill up again so that the surface is smooth.

Some scions take a long time to start, where others come away readily after growth starts. A small stake should be put to all when they do start to grow, as they very often get broken.

I think all who take an interest in fruit culture should do a certain amount of budding and grafting each year. I am sure there is no better way to improve old trees than by heading back and re-grafting with some improved variety. We have far too many small green Apples in our orchards at the present time, which are useless.



A B C

A—Bush Tree to be grafted.
B—Bush headed back, and grafts placed in position.
C—Finished grafts. Grafts are covered with clay or grafting wax.

BUDDING.

Buds are best for the propagation of stone fruit, and budding is much preferable to grafting. Buds can be used for the propagation of all fruit.

July is the best time ro bud, and if the stocks are in good health it is quite an easy matter. If buds from the Summer wood are to be used, do not use too gross ones, as medium-sized buds give far better results. Wood buds only must be inserted. After cutting off the shoots for budding, label and place in a can of water until required. Have all tying materials in readiness, and always use a very sharp budding knife.

Take a young shoot and cut off a slice of bark and wood about one inch long. Remove the wood very carefully. This is effected by bending the wood, when it should come away quite easily. Do not bend the bark. If the eye of the bud does not look full, or if left with a hole, it is a bad bud and is of no use. Next cut a "T" about an inch long on the stock, and insert the bud. Care should be taken not to injure the wood with the knife, and also when inserting the bud not to injure the bark. Bind firmly with raffia and tie, not too tightly or too loosely. When finished label each bud. Remove bindings in about a month's time. If left much longer the raffia will cut into the bud.

A MONTHLY CALENDAR.

JANUARY.

CONTINUE the planting of all fruit trees if weather is open. If the weather is too severe for planting, the trees should be covered with some frost-proof material. During hard weather prepare stakes, labels and soils for planting. These will be needed at different times throughout the year, and it is as well to have them ready when needed. Soils to which manure has to be added cannot be too well mixed.

All nailing should be attended to, but newly-planted trees must not be nailed until the soil has thoroughly settled. The pruning of orchard trees should also be attended to. The centre of the trees should be made quite open so as to admit all possible light and air. It also makes the gathering of fruit much quicker and easier. All thin, weak wood should be cut out, as should dead and cross branches. Any trees or bushes which are unprofitable should be taken out or cut back for grafting with a good variety. Prepare a wash for fruit trees which require it, and this may be used on calm days.

FEBRUARY.

If the weather is open continue the pruning of all wall trees. Newly-planted Standard and Bush trees should be staked, and they should be given a mulch of half-decayed manure. Trees which have been kept back owing to severe weather should now be planted. Young trees which are planted in exposed

positions should be carefully watched, as hares and rabbits will soon destroy them if they get a chance. The whole garden or orchard should be surrounded by rabbit-proof netting. If any of the young trees have been barked the place should be smeared with grafting wax, and in nearly all cases a new bark will form.

The Raspberry plantation should be attended to this month. They should be given a good top-dressing of well-decayed manure and bone meal, as no fruit responds better from being well treated. The canes should always have plenty of room, and blanks should be filled with other canes, lifted with as much soil on the roots as possible. All Autumn-fruiting varieties should now be cut over to within a few inches of the ground.

March.

This month the nailing should be proceeded with as fast as possible, and the pruning of all fruit trees, except the Pear, should be finished. The pruning of Pear trees should be left as late as possible, as in most cases when they are pruned early a large amount of fruit buds are cut off. Spray all trees with caustic alkali wash. This can be procured in tins, and as it is easily mixed it saves a great deal of time and trouble. Rubber gloves should be worn to protect the hands.

The Strawberry beds should be attended to this month. All weeds and decayed leaves should be cleared away. A top-dressing of half-decayed manure should be given and a small amount of bone meal should be applied.

Young trees which have been laid in should be planted at once, and if blossom appears on these

trees it should all be cut off. This will help the next year's crop greatly.

All outdoor Vines should be trimmed up, and any extension shoots must be nailed. The lateral shoots should be pruned to one strong bud. Vines that have suffered with Mildew should be painted with sulphur mixed with milk. A little petroleum should be added to this mixture to cause the sulphur to adhere to the Vines.

April.

At this time Black Aphis generally makes its appearance on Cherry trees. If this has appeared the trees should be syringed with Quassia Extract at intervals of three or four days until clear of the pest. The mulching of fruit trees should be attended to. On no account apply heavy mulches. Three or four light mulches are far better than one heavy one. The hoe should be kept going in all fruit plantations, as it will do a vast amount of good at this time of the year. If dry weather has set in newly-planted trees should have a good soaking of water, and they may be sprayed overhead with clear water if backward in growth.

Plum trees should be looked over for Aphis, and if it has attacked them they should be sprayed with Quassia Extract until they are clean. Red Spider is sometimes troublesome. A good syringing with cold water will generally remove it. Care should be taken to see that the trees do not suffer from drought. All newly-planted trees ought to get a good supply of water.

At the beginning of this month the grafting of Apple and Pear trees should be attended to. The stocks should have been headed back some time ago. This is the only plan to get rid of worthless varieties.

A good variety should be chosen for grafting on the worthless stocks. It is very interesting to have a few Paradise stocks to graft on.

Gooseberry bushes should be examined now for the presence of caterpillars. If they have attacked the bushes they should be given a good dusting of newly-slaked lime. This will soon kill all caterpillars and will not harm the bushes.

Aphis should be looked for on Red and Black Currants. If this has made its appearance syringe the bushes with Quassia Extract, which will readily destroy them.

May.

The disbudding of fruit trees should be attended to this month, especially Apricot and Peach trees. Apricot trees require plenty of light and air, therefore give plenty of room and rub off all the coarse shoots which will never be of any use. Any shoots which have no fruit on should be cut right out of Peach trees, and young shoots should be encouraged in place of those cut out. The success of all stone fruit trees lies in encouraging young wood. The young fruits should be thinned out at this time where overcrowded. Each fruit should be left about nine inches apart.

All fruit trees should be looked over for Aphis. This is often very troublesome, and the best thing for it is a syringing with Quassia Extract. Heavy-bearing trees should be given a good soaking of liquid manure, and then a good mulching of short stable or farmyard manure.

Keep all fruit plantations free from weeds, and stir the surface soil with the hoe.

Prepare straw for the bedding of the Strawberry plantations, and also get out the nets and mend any holes, as birds are troublesome, and often do a lot of damage.

June.

The thinning of Apple and Pear trees should now be attended to. Older trees which have become well established are quite able to carry heavy crops, but trees from four to six years should have their fruit thinned to about one-half. If the trees have not been attacked before look carefully for Aphis on the young shoots. If it has made its appearance spray the trees with Quassia Extract. The trees should be sprayed whenever this troublesome pest makes its appearance, as if it is allowed to get a good hold on the trees it is not possible to clean them, as the leaves curl up.

If the weather is hot and dry all fruit trees will be the better for a good soaking of liquid manure diluted with water. After this the trees should be given a light mulch of half-decayed stable or farmyard manure. If large fruit are wanted thin out to a small number on each tree, and feed with a mixture of blood manure and Kainit, mixed with water, once a week, until the fruit commences to ripen.

July.

This is a good time to layer Strawberries for early fruiting next year. Layer only from healthy plants, and the runners should be stopped beyond the plant required. If the weather is very dry water the old and young plants.

Summer pruning of all fruit trees is usually practised in this month. A severe stopping of the shoots at this season causes a burst of growth too near the base. Allow a fair amount of stem, and it can be cut back to its proper length at the Winter pruning. Pear trees may be cut in closer than Apples, as they are not nearly so ready to send forth

a large amount of second growths.

Early Peaches will be ripe this month, and the trees should be looked over regularly. The fruit should be gathered a day or so before properly ripe.

August.

Destroy all Strawberry plantations over four years old, and make new plantations of young plants layered in July, which ought to be well-rooted by now. Clean those plants which have finished fruiting, as the sooner they are cleaned the better they will be for fruiting next year.

The old canes of Raspberries should be cut out when they have done fruiting, as it will be to their advantage next season.

Water heavy-bearing wall trees and give a good soaking of liquid manure diluted with water. Put up bottles with some sweetened matter such as syrup and water, or sour beer, to catch the Wasps and Flies, which often do a great deal of damage. Wasps' nests should be hunted for and destroyed.

This is a good time to take stock of which are the best fruit trees and bushes. Those which are worthless should be marked, so that they may be taken out in the Autumn.

Look over budded stocks and remove the tying material, as it soon gets too tight and cuts the bark. About a month is ample time for the bud to take.

September.

Early varieties of Pears and Apples should be looked at regularly, so that they may be gathered at the right time. A small piece of matting should be tied around the stalk of large dessert Pears. The matting should also be fastened to the tree, as a large number of fruit may be saved in this way. At this

time birds are very fond of destroying some of the best fruits, and these should be enclosed in muslin bags, or a net should be put over the whole tree.

If the weather is dry give heavy-bearing trees a good soaking of water.

Decide what varieties of the various fruit trees are to be planted for next season, and send the order to a reliable nurseryman. If this order is left too late one will not get such a good selection of trees, and it also makes it late for planting.

Look over all wall trees which are bearing fruit and tie in any growths which are shading the fruit. Also pick off any leaves near the fruit, so that the sun may colour it evenly.

If the ground intended for new plantations is vacant it should be thoroughly trenched and manured, so that it will be quite settled and firm by November.

Continue to plant Strawberries (if not done last month). Keep the hoe active in Strawberry plantations, as it will greatly benefit them if they get well-rooted before the cold weather sets in. If dry, see that newly-planted beds have a sufficient amount of water.

Attend to the picking of late Plums, which will be ripe about the end of the month. Plums on a North wall, if wanted for late dessert, should have two thicknesses of net put over them, as it will help to retard them.

October.

This is one of the busiest months in the garden year. The gathering and storing of Apples and Pears is the principal thing to be dealt with. The best plan is to gather the fruit in trays and carry to the fruit-room on a hand-barrow. Do not attempt

to gather the fruit unless it comes away from the tree easily when lifted lightly upwards. Damaged fruit should never be stored—it should be put aside for present use, and it should be used as quickly as possible. Late-keeping varieties should be placed on the top shelves of the fruit-room, and those which do not keep long should be placed on the lower shelves.

Prepare all ground required for planting and remove all trees which were marked to be destroyed. Careful planting always pays, and soil to be used in planting fruit trees should be mixed now. A good barrowful of nicely-mixed soil is a very great help to newly-planted trees.

By the end of this month Red Currants may be pruned and Black Currants should be thinned out. Only the old or weak wood should be removed, leaving the young for bearing next year. Red Currants may be cut back to two eyes of young wood.

Trees which have not fruited, and are making strong growth, should be noted for root-pruning or re-planting. In most cases the trees will do well if they are moved from one part of the garden to another—that is to say if they are not too old. Where the roots are very long they may be shortened a little.

November.

Prepare all soil which will be needed for planting fruit trees, using a good supply of new soil. Give the ground a dressing of lime, as this is of great benefit to stone fruits such as the Cherry, Plum, Damson, Peach and Nectarine. Proceed with the planting of all fruit trees.

Attend to the fruit which is stored in the fruit-room. The fruit should be examined carefully at least once a week. All decayed fruit should be

removed at once. Plenty of fresh air should be put on the fruit-room, if the weather is mild, but none should be put on in damp, frosty weather. Make notes of which are the best keeping fruits for future reference in case of extended planting.

Prune all Gooseberries and Currants, if not already done. In some cases, where the birds are troublesome, the pruning of Gooseberries is left until the Spring. Where the bushes have been sprayed in the Winter the birds will not harm the buds. February is the worst month for the birds attacking the buds. I always make an effort to get the bushes sprayed by the end of January. Any strong-smelling mixture will do quite well to syringe the bushes with. Some people prefer a dusting of soot or lime.

Make new plantations of young Gooseberries and Red and Black Currants. If well-ripened cuttings are put in this month there will be little failure.

Proceed with all possible planting this month, as it will be a great advantage to the trees if they are planted now.

Lightly fork over all ground between rows of small fruit trees, except Raspberries. Give a supply of well-decayed manure, but keep it well away from the stem of the trees or bushes. Care should be taken when moving young fruit trees to spare the roots as much as possible. If the roots get damaged it is almost sure to injure the trees in some way.

December.

Cut off scions for grafting this month. They should be labelled and tied in bundles and laid in a North border.

All remaining ground should be dug (if possible) this month, so that it may be finished before hard

finished this month. Planting may be continued up to March, but such good results must not be expected from the late-planted trees as from those planted earlier.

All outstanding work in the fruit garden should be hurried forward this month if the weather is favourable. Nailing and pruning should be finished, but Pears and Gooseberries should not be pruned until the Spring.

After pruning and manuring have been finished, spray all fruit trees with alkali to destroy lichens, mosses and insect pests. The operator should wear old clothes and rubber gloves.

Currant and Gooseberry bushes which are infested with moss can be cleaned with a dressing of newly-slaked lime. It should be dusted among the branches on a still day when the bushes are damp. Lime has great cleansing powers, and when washed off by the rain is of great benefit to the soil.

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